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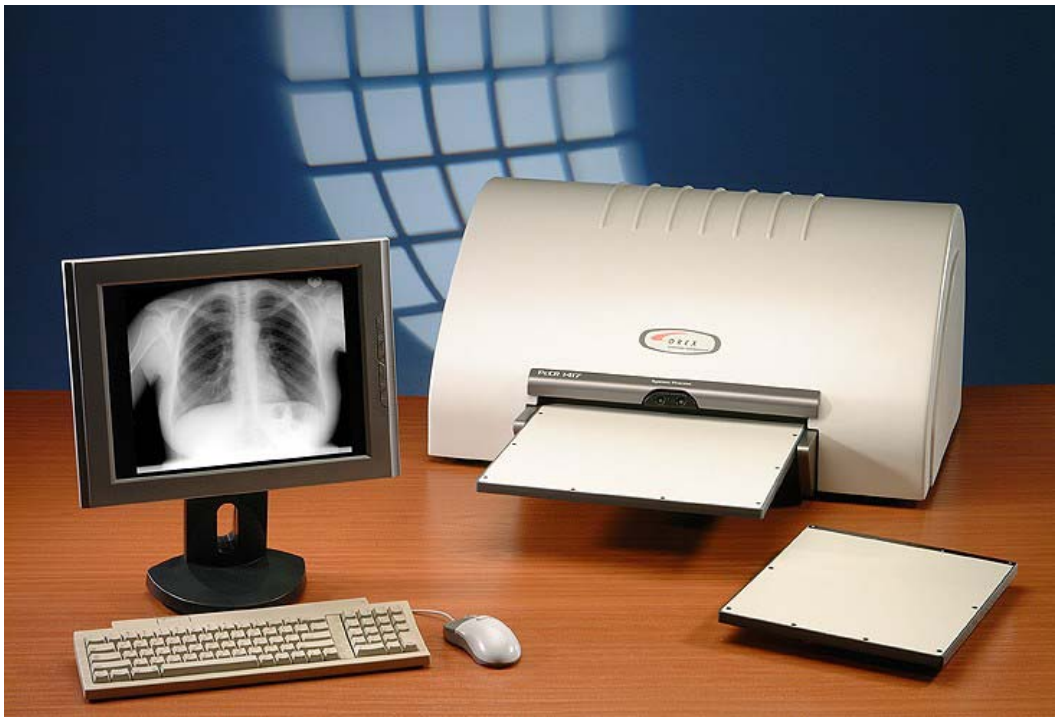
PcCR 1417 ACL4 System

Automatic Cassette Loading Version



Service Manual

Catalog number: AT095045-00

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OREX Ltd. is a market innovator in the field of portable Computed Radiography Technologies—designed and priced for low-volume clinic or field unit needs.

Founded in 1995 under the name of Digident, the company initially entered the market of desktop dental radiography providing high quality, portable CR reading units for dental and orthodontic professionals around the world. The secret of Digident/OREX's rapid success lies in *the best cost-performance ratio on the market*.

OREX designs, manufactures and markets phosphor image laser scanners. These units replace the traditional x-ray film and light box. The scanners allow the user to immediately read the x-ray image from the phosphor plate, and transfer it to a DICOM 3 compatible digital computer file. Once transferred, users can manipulate the digital image for close-up screening, or transmit it for long-distance consultation. After each scan, the phosphor plates are automatically erased by the unit, ready for re-use.

OREX provides clients with a full solution including phosphor image plates, laser readers, software for image processing, storage, retrieval and communication in Picture Archiving and Communications System (PACS) compatible format.

The company's mission is to become a leading provider of compact personal CR systems. Following the successful penetration of the global dental market, the company changed its name from Digident to OREX and expanded its markets and product lines to serve the *dental, medical, military, industrial and veterinary* fields.

"We are committed to assisting our customers in obtaining maximum value from OREX products by providing excellent support at exceptional value."

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Safety

Laser Safety Instructions

1. During nominal operation, the scanner is closed and sealed with a protective cover. That is for preventing the laser from being exposed to the outside area, and to prevent access to the laser by the user.
2. During nominal operation, the cover should not be removed. Removing the cover shall be done only for service purposes, and by a qualified technician for service operations.
3. Any service operation shall be done without activating the laser unit. Disconnecting the relevant connector on the laser board will disconnect the power supply to the laser, and deactivate the laser unit for service operations.
4. In case the laser must be operated during service operation, the service technician shall make sure that the optical unit is located within the cylinder area, where the laser beam is blocked and cannot leak outside.
5. When a service operation is taking place, with cover removed and laser activated, **avoid** direct exposure to the laser beam.

Table of Contents

1. Terms and Conventions.....1-1

2. Maintenance and Service 2-1

2.1 General 2-1
2.2 Service Report 2-1
2.3 Preventive Maintenance 2-1
2.3.1 Cleaning the Rollers 2-1
2.4 Service Operations 2-2
2.4.1 General 2-2
2.4.2 Removing the Cover.....2-3
2.4.3 Removing the bottom service panel 2-6
2.4.4 Replacing USB board.....2-7
2.4.5 Replacing the Motion board 2-9
2.4.6 Replacing the Sensor board.....2-11
2.4.7 Replacing a locating sensor.....2-12
2.4.8 Replacing erase Lamps board 2-13
2.4.9 Replacing Laser.....2-14
2.4.10 Replacing Laser board.....2-15
2.4.11 Replacing PM board & PM assembly 2-16
2.4.12 Replacing Rollers motor.....2-18
2.4.13 Replacing Loader Assembly 2-20
2.4.14 Replacing Slide Stepper motor.....2-22
2.4.15 Replacing Rotational motor 2-24
2.4.16 Replacing 15V power supply 2-28
2.4.17 Replacing 5V/12V power supply 2-29
2.4.18 Replacing 12V power supply 2-30
2.4.19 Replacing Erase Lamps.....2-32
2.4.20 Replacing Inverters 2-34
2.4.21 Replacing the Slide.....2-36

3. Component Description.....3-1

3.1 General 3-1
3.2 USB 3-3
3.2.1 Location.....3-3
3.2.2 Component 3-3
3.2.3 Description 3-4
3.3 Motion board.....3-1

3.3.1 Location 3-1
3.3.2 Component 3-1
3.3.3 Description 3-2
3.4 Sensor Board 3-4
3.4.1 Location 3-4
3.4.2 Component 3-4
3.4.3 Description 3-5
3.5 Erase lamps board 3-7
3.5.1 Location 3-7
3.5.2 Component 3-7
3.5.3 Description 3-8
3.6 Laser 3-9
3.6.1 Location 3-9
3.6.2 Component 3-9
3.6.3 Description 3-10
3.7 Laser board 3-11
3.7.1 Description 3-11
3.7.2 Description 3-11
3.7.3 Description 3-12
3.8 PM Assembly 3-13
3.8.1 Location 3-13
3.8.2 Component 3-13
3.8.3 Description 3-14
3.9 Rollers motor 3-15
3.9.1 Location 3-15
3.9.2 Description 3-15
3.10 Stepper Motor – Carriage 3-16
3.10.1 Location 3-16
3.10.2 Component 3-16
3.10.3 Description 3-17
3.11 Stepper Motor – Slide 3-18
3.11.1 Location 3-18
3.11.2 Component 3-18
3.11.3 Description 3-19
3.12 Rotation motor 3-20
3.12.1 Location 3-20
3.12.2 Component 3-20
3.12.3 Description 3-21
3.13 15v power supply 3-22

3.13.1 Location 3-22
3.13.2 Component 3-22
3.13.3 Description 3-23
3.14 12V/5V power supply 3-24
3.14.1 Location 3-24
3.14.2 Component & Description 3-24
3.15 12V power supply 3-25
3.15.1 Location 3-25
3.15.2 Component & Description 3-25
3.16 Erase Lamps 3-26
3.16.1 Location 3-26
3.16.2 Component 3-26
3.16.3 Description 3-27
3.17 Inverters 3-28
3.17.1 Location 3-28
3.17.2 Component & Description 3-28

4. Appendix A: Required Tools for FSE 4-1

5. Appendix B: Service Report 5-1

6. Appendix C: Cleaning the Rollers 6-1

List of Figures

Figure 1: Component Description – Block Diagram 3-2
Figure 2: Attaching The Cleaning Tray 6-1
Figure 3: The Cleaning Strips 6-2

1. Terms and Conventions

The following abbreviations are used throughout this manual:

Term	Meaning
FSE	Field Service Engineer
PSP	Photo-Stimulable Phosphor
USB	Universal Serial Bus

2. Maintenance and Service

2.1 General

This chapter describes routine maintenance and service operations (in case of failures) performed on the PcCR 1417 by FSEs authorized by Orex.

For the required tools, please refer to Appendix A.

2.2 Service Report

With the completion of any servicing procedure, photocopy the Service Report in Appendix B, fill it out, and send it to the Orex service department at the following:

Israel:
Fax: (+972) -4- 9591262
Email: support@orex-cr.com

USA:
Fax: (+1) -617-244-8888
Email: supportusa@orex-cr.com

2.3 Preventive Maintenance

2.3.1 Cleaning the Rollers

The PcCR 1417 has two rollers that pull the plate from the cassette into the scanner and push it back out into the cassette. Over time, the rollers accumulate dirt or dust.

The rollers should be cleaned periodically to remove dust and small particles. The roller-cleaning device enables you to clean the rollers that feed the image plate from the cassette into the reader.

The Cleaning device includes the following items:

1. Cleaning tray
2. Cleaning plate with adhesive strips covered with protective paper/a protective envelope.

Refer to Appendix C for detailed information.

2.4 Service Operations

2.4.1 General

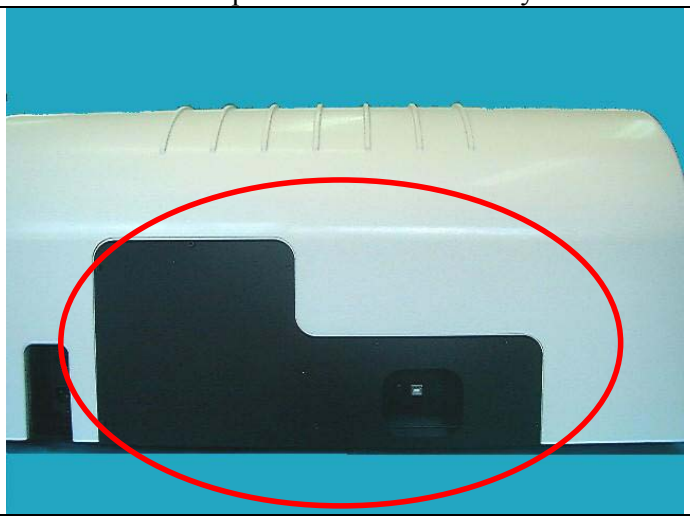
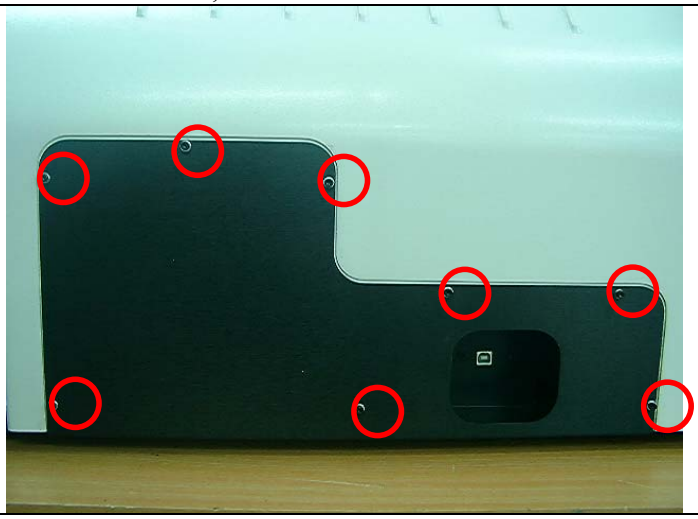
Only FSEs authorized by Orex are allowed to conduct any service operation described in this chapter. If a person who is not an FSE authorized by Orex conducts any operation described in this chapter, it will cause the warranty for the PcCR 1417 to be considered null and void.

After any service operation, a report must be filled out and sent to the Orex service department. The Service Report is located in Appendix D.

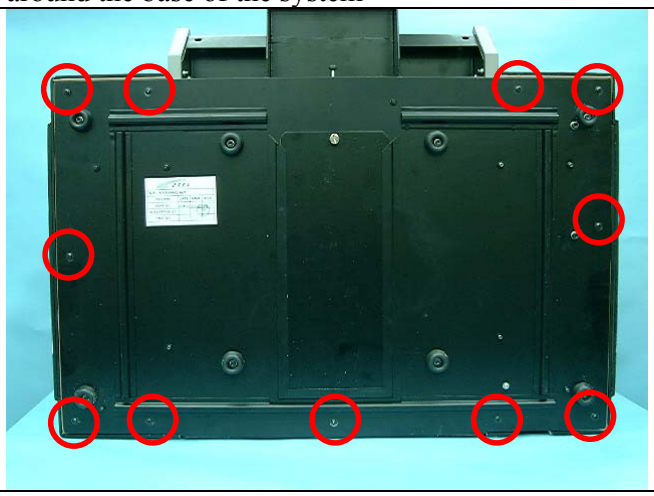
2.4.2 Removing the Cover

For any service operation, the cover of the scanner must be removed. After the service operation is finished, the cover must be secured back to the scanner. Before removing the main cover, it is necessary to remove the back service panel.

2.4.2.1 Service Panel

1	Locate the service panel at the rear of the system
	
2	Remove the 2.5 mm Allen screws that attach the back service door to the cover; then remove the service door
	

2.4.2.2 Main Cover

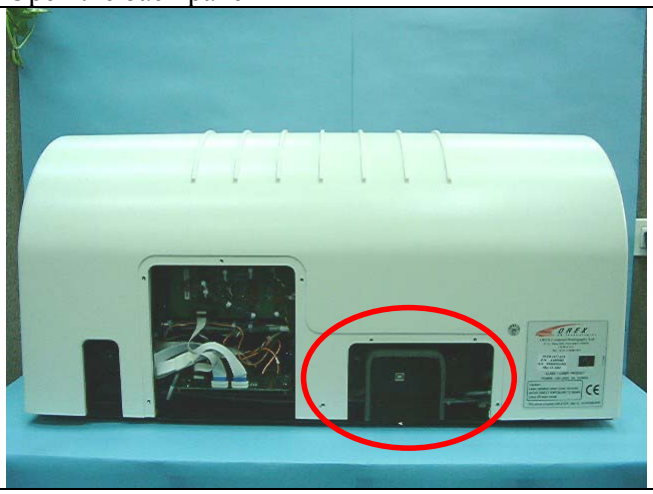
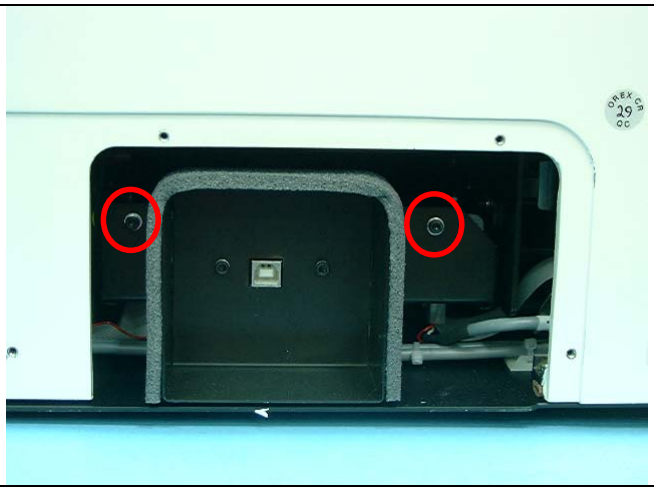
1	The cover is secured to the system with eleven Philips screws around the base of the system
	
2	When opening the cover, **do not** place the scanner on its back (bottom-side up). Pull the system to the edge of the table and open the screws on the bottom. Repeat this for all sides of the system, and when all the screws are open, lift the cover up and remove it from the system.

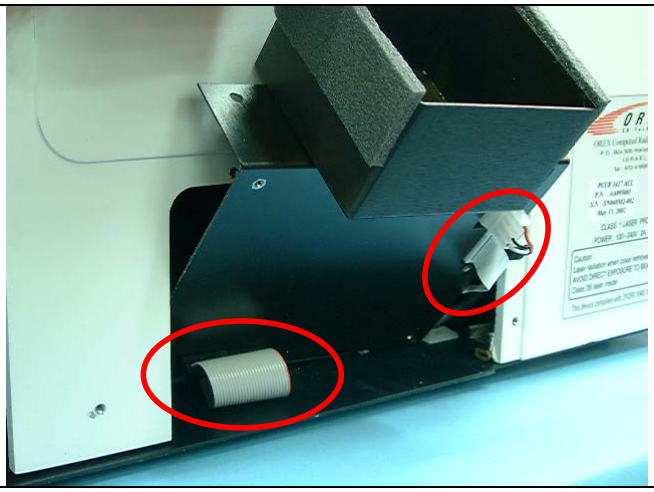
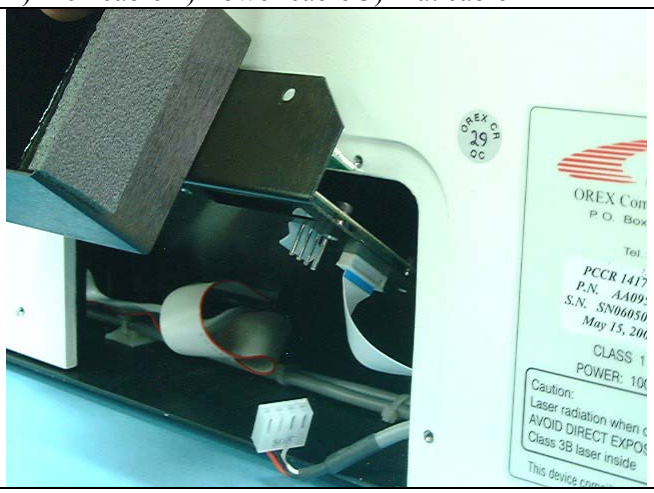
	Position scanner as shown to remove the screws from the bottom. This method will prevent damage to the cover.	

2.4.3 Removing the bottom service panel

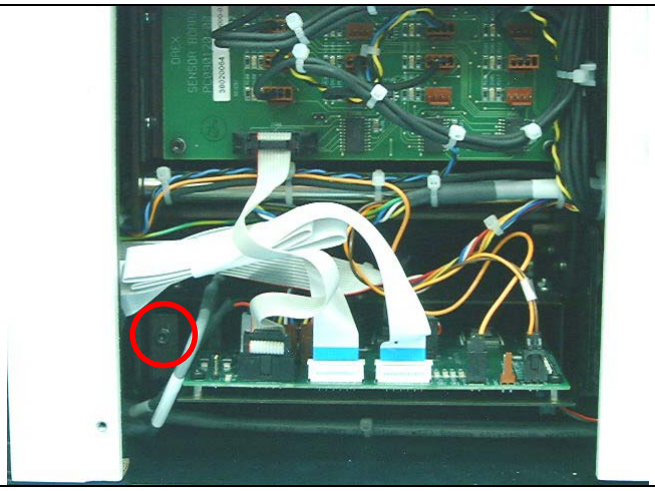
1.	Place the system on its back (bottom-side up).
2	Remove the screw attaching the bottom panel to the system (marked with “A”)
3	Slide the bottom panel upwards and remove it from the system.

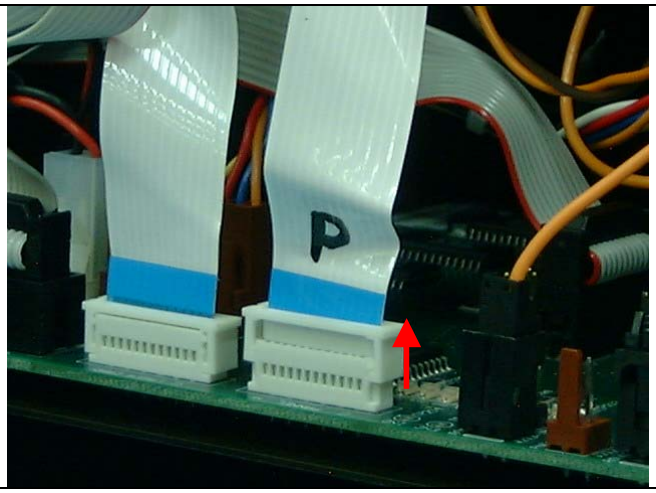
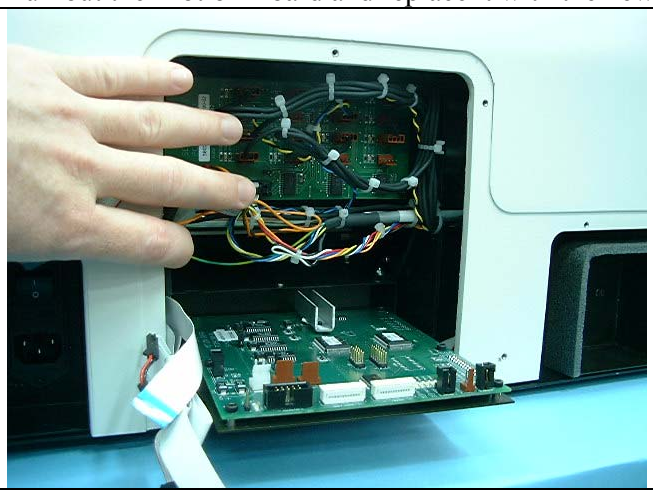
2.4.4 Replacing USB board

1.	Open the back panel
	
2.	Remove the 2.5mm Allen screws that secure the USB bracket.
	
3.	Gently pull out the USB board.
4.	Disconnect the cables leading to the back of the USB board.

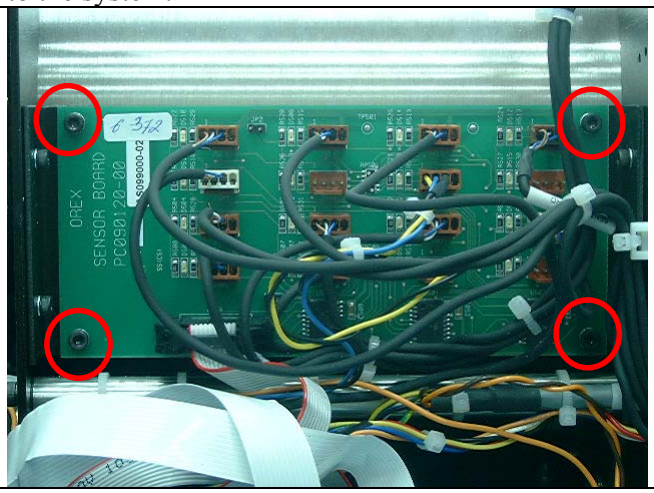
	
5.	Place the new USB board. Re-connect the following connectors: 1) Flex cable 2) Power cable 3) Flat cable
	
6.	Push the USB board back to its place and secure with the Allen screws.

2.4.5 Replacing the Motion board

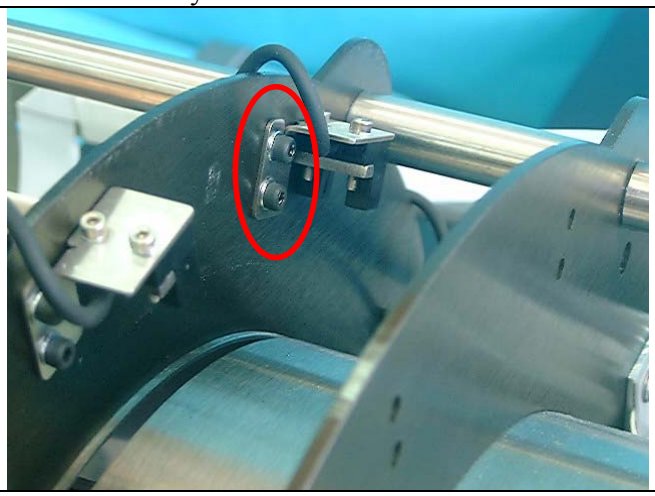
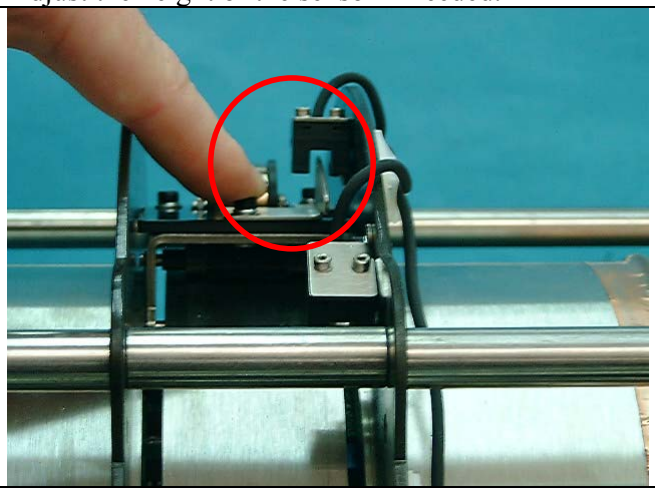
1.	Open the back panel.
2.	Remove the 2.5mm Allen screws at the left side of the Motion Board bracket.
	
3.	Gently pull out the Motion Board.
4.	Disconnect the cables from the Motion Board.

	
5.	Pull out the Motion Board and replace it with the new one.
	
6.	Connect the cables and secure the bracket with the Allen screw.

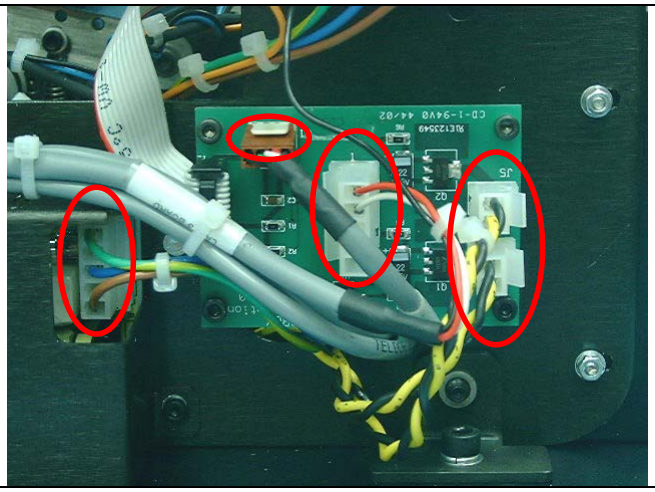
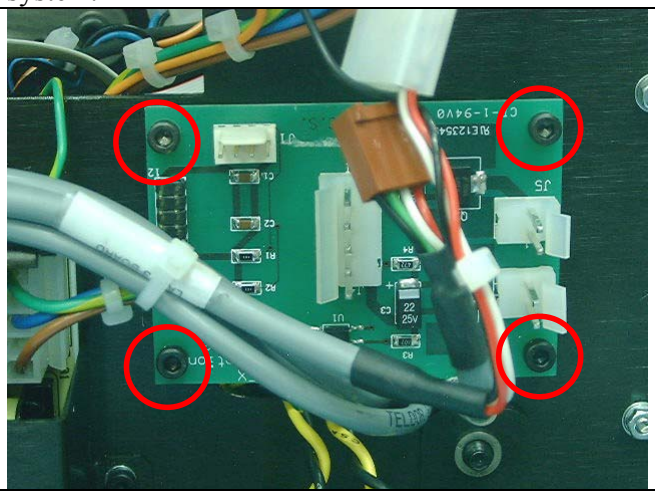
2.4.6 Replacing the Sensor board

1.	Remove the four M3x6 Allen screws that attach the sensor board to the system.
	
2.	Remove the board from the system and replace it with the new one.
3.	Disconnect the cables from the old board and connect to new board ONE BY ONE.

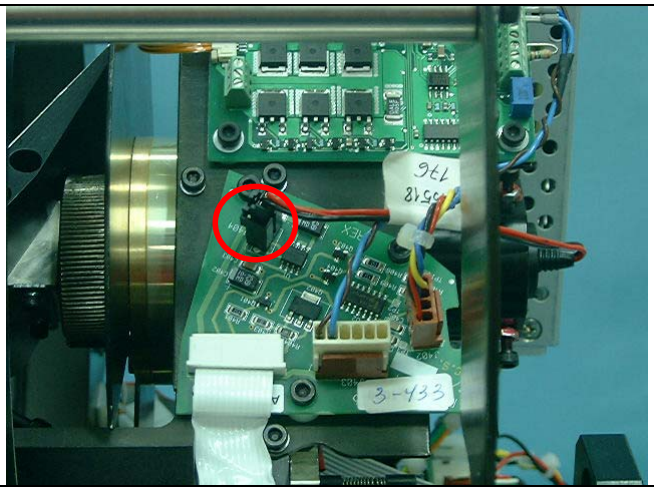
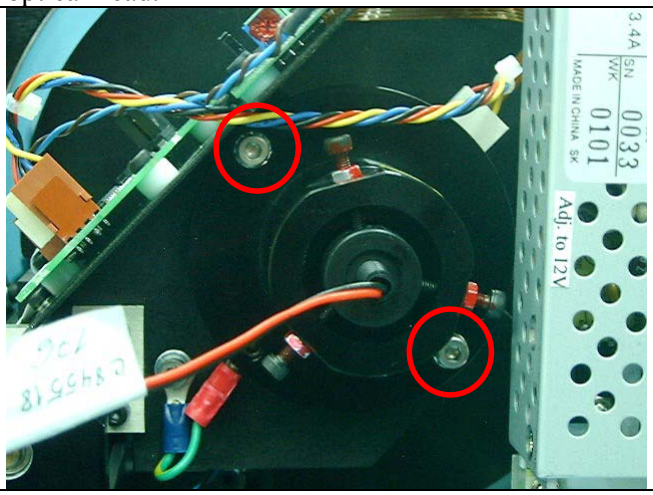
2.4.7 Replacing a locating sensor

1.	Remove the two M2.5x6 Allen screws that attach the sensor bracket to the system.
	
2.	Remove the sensor.
3.	Follow the sensor wire until you reach the sensor connector on the sensor board. You may need to cut some tie-wraps along the way.
4.	Disconnect the sensor connector and connect the new sensor.
5.	Secure the new sensor to the chasis.
6.	Secure the sensor wire to the system body with tie-wraps in the appropriate locations.
7.	Manually, move the plate carriage to the location of the new sensor and check that the carriage flag is not touching the sensor. Adjust the height of the sensor if needed.
	
8.	Carefully return the plate carriage to it location. Do not release it until it stops on its stopper.

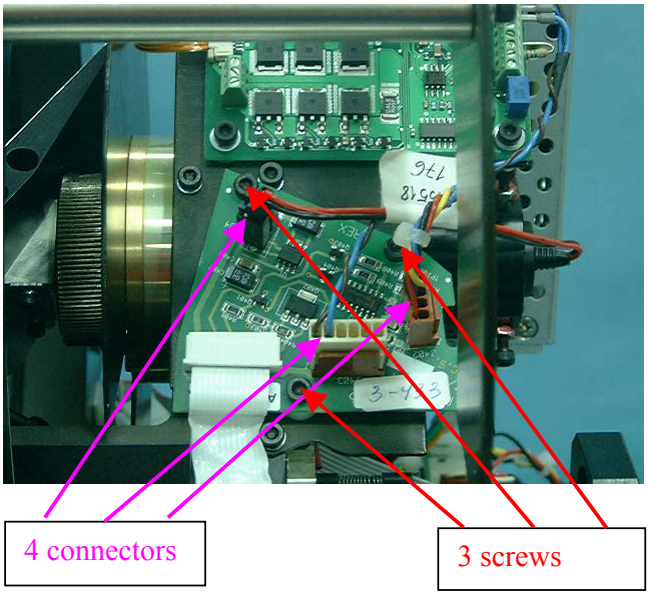
2.4.8 Replacing erase Lamps board

1.	Disconnect all the cables from the board.
	
2.	Remove the four M3x8 Allen screws that attach the board to the system.
	
3.	Attach the new board to the system. Make sure you placed the plastic isolation cylinders between the erase lamps board and the system.
4.	Re-connect the cables to the board.

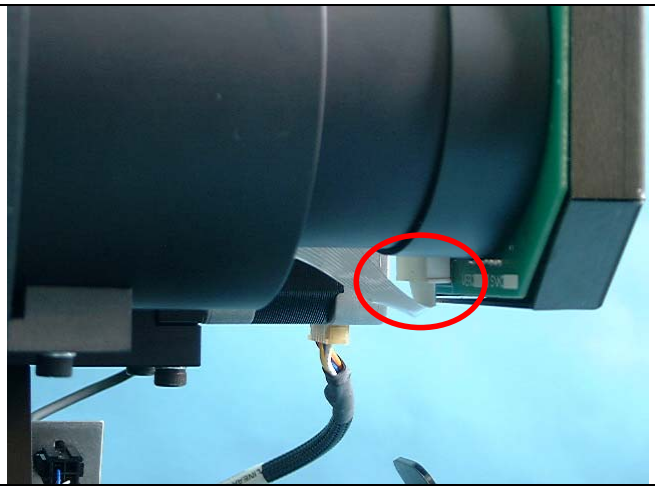
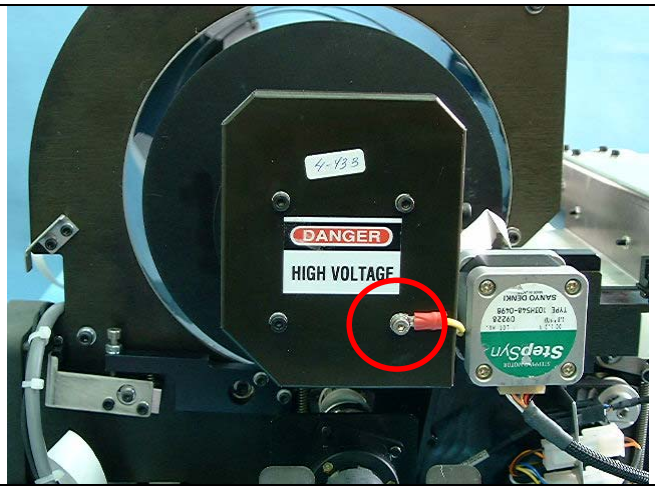
2.4.9 Replacing Laser

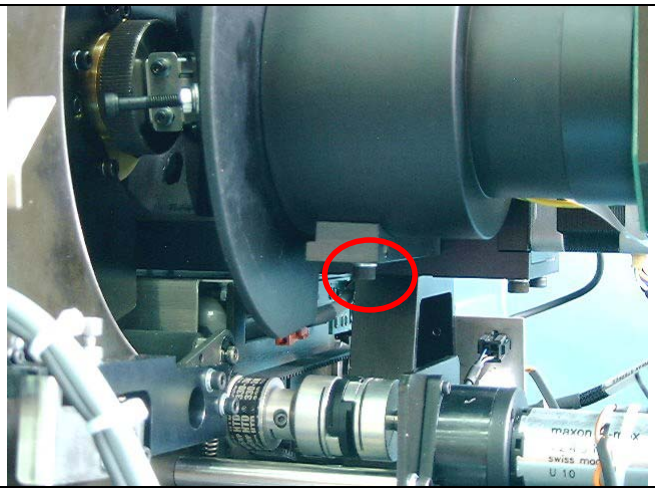
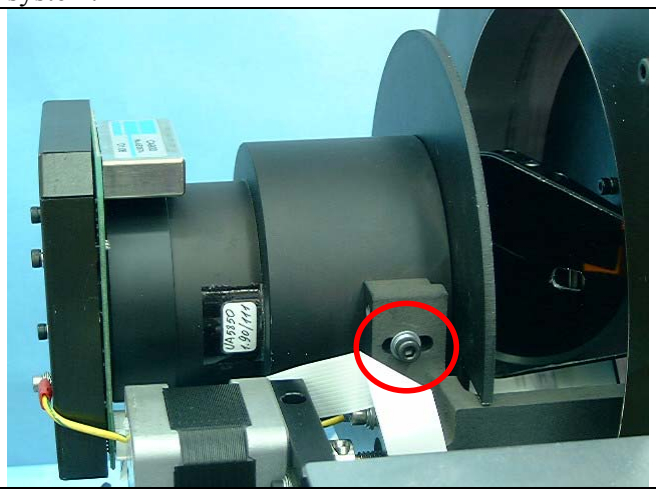
1.	Disconnect the laser cable from the laser board.
	
2.	Remove the two M4x12 Allen screws that attach the laser to the optical head.
	
3.	Remove the laser, and replace it with the new one.
4.	Secure the laser with the two M4x12 screws.

2.4.10 Replacing Laser board

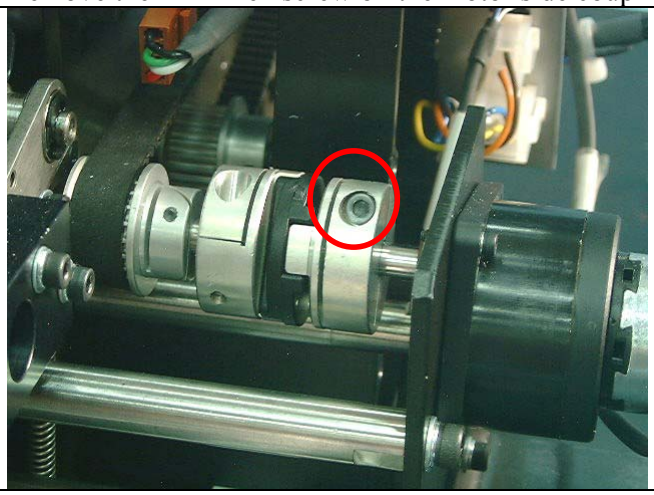
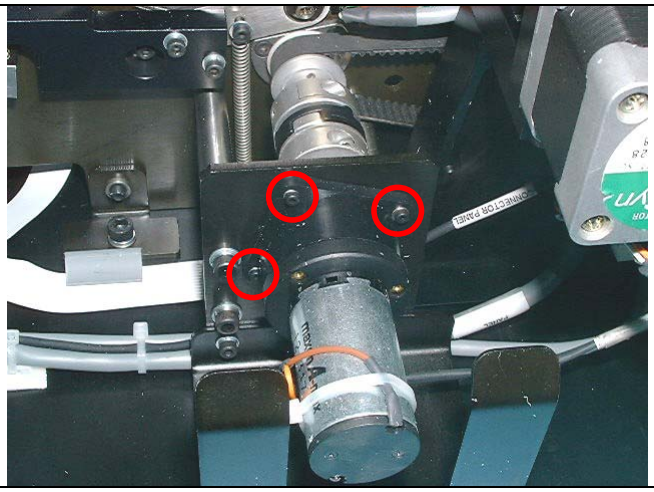
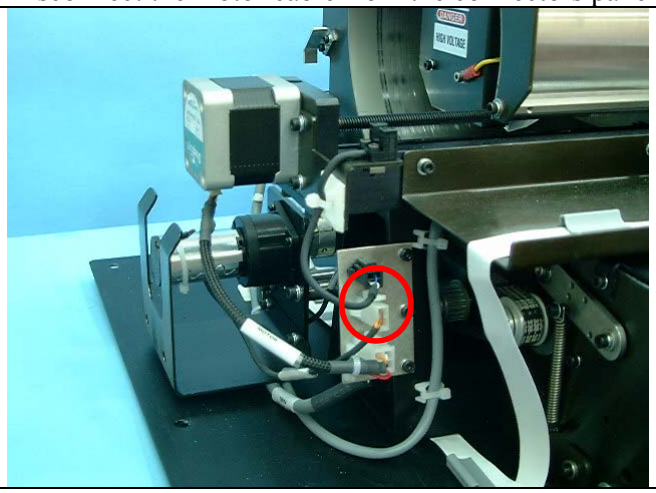
1	Locate the laser board: 
2	Disconnect the 4 connectors from the laser board.
3	Remove the 3 screws securing the laser board.
4	Place the new laser in its location, and re-attach with the 3 screws.
5	Reconnect the 4 connectors to the laser board.

2.4.11 Replacing PM board & PM assembly

1.	Move the optical head to the left, using the Scanner Interface Setup → Diagnostic tab. Turn off the power before closing the Diagnostic tab.
2.	Disconnect the flex cable from the PM tube.
	
3.	Remove the M3x8 Allen screw that connects the ground wire to the PM board shield.
	
4.	Remove the bottom M4x14 Allen screw that attaches the PM tube to the system.

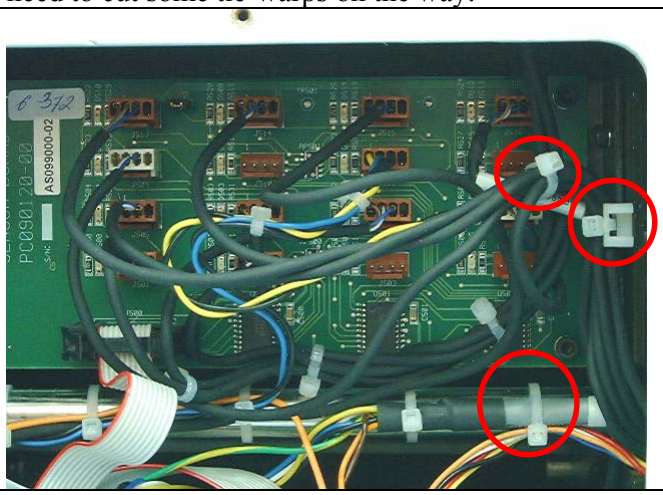
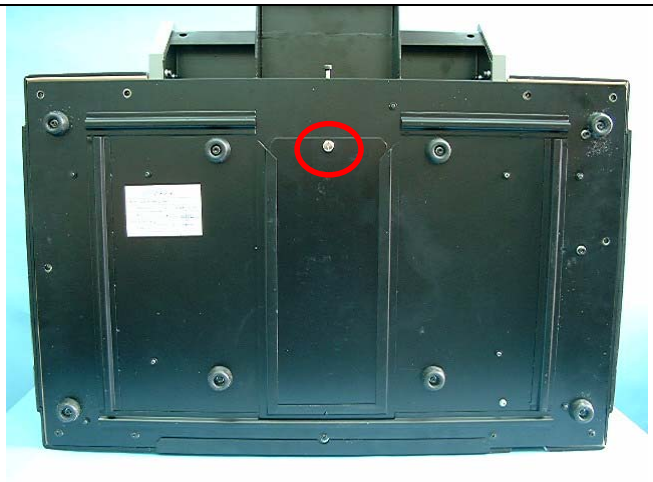
	
5.	Remove the side M4x16 Allen screw that attaches the PM tube to system.
	
6.	Remove the PM tube, and replace it with the new one. Secure with the screws, M4x16 at the side, and M4x14 at the bottom.
7.	Connect the ground wire to its place on the PM board shield, and the flex cable to the connector on the PM board – with the blue side out.

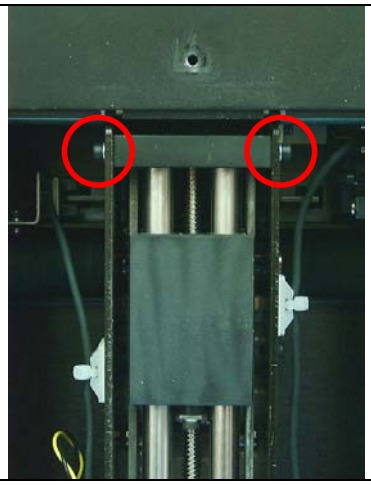
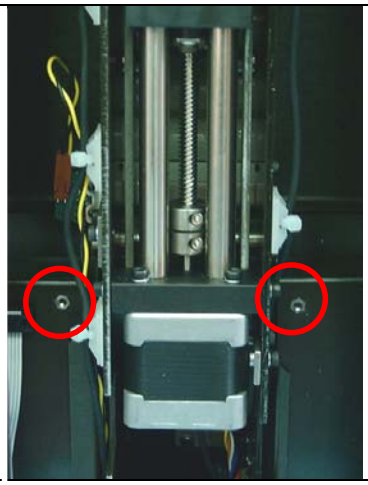
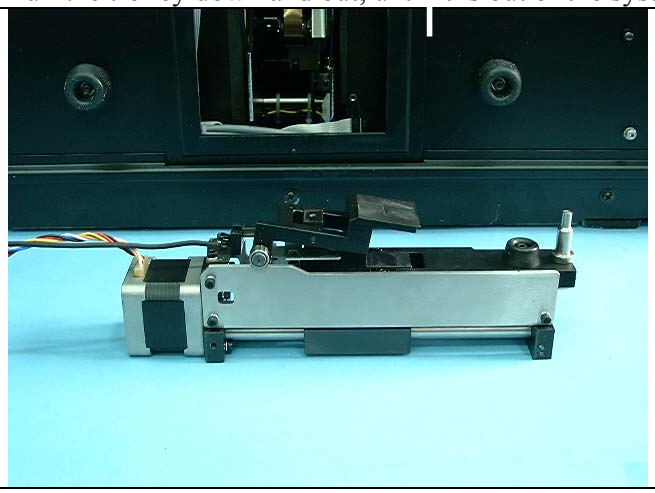
2.4.12 Replacing Rollers motor

1.	Remove the M4 Allen screw on the motor side coupling.
	
2.	Remove four M2x10 that attach the motor to the system, and remove the motor.
	
3.	Disconnect the motor cable from the connectors panel.
	

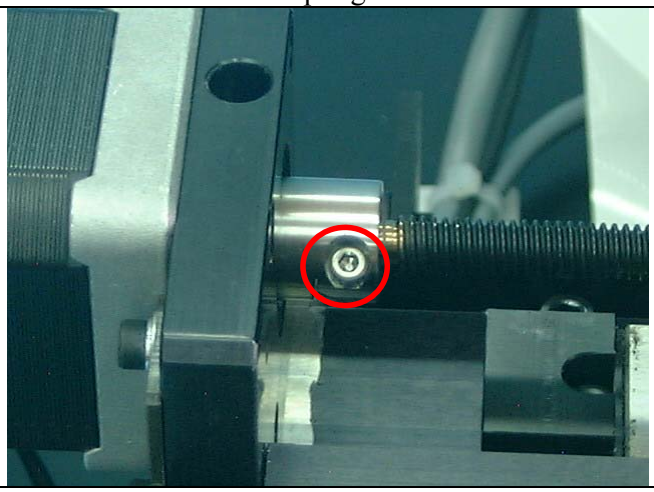
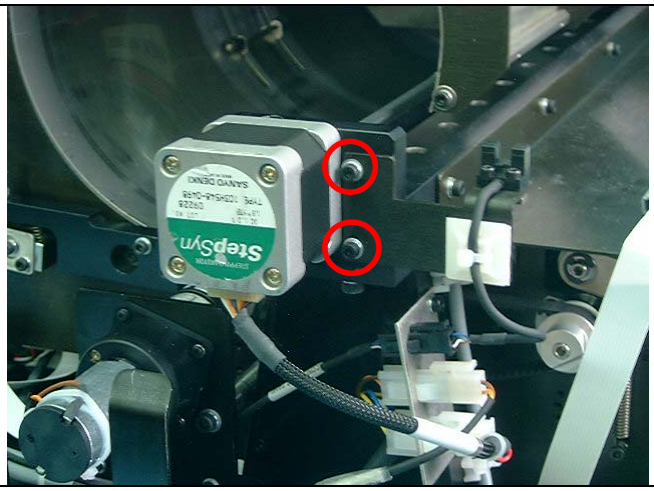
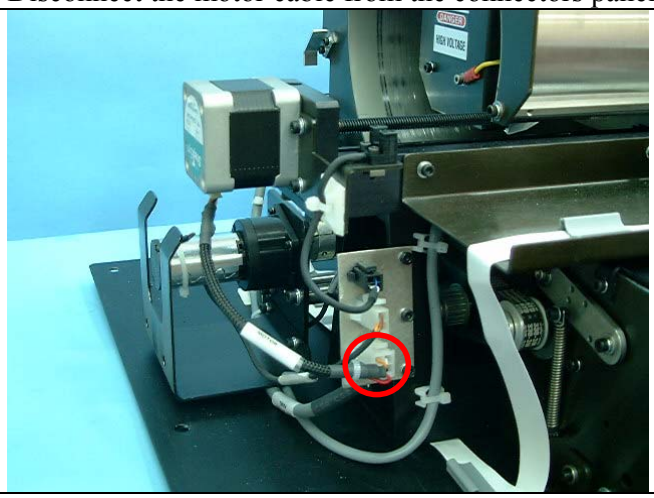
4.	Insert the new motor to its place. Place the coupling on the motor axis, and mount the motor to its place, by using the four M2x10 Allen screws (there is only one orientation to mount the motor in its place).
5.	Firmly tighten the coupling screw.
6.	Connect the motor cable to the connector on the connectors panel.

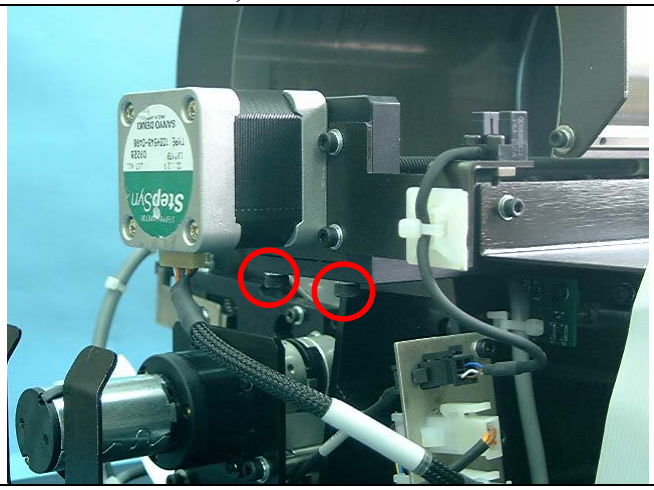
2.4.13 Replacing Loader Assembly

1.	Disconnect the trolley cable from the Motion Board J204 and Loader Sensor cable from the Sensors Board J508. Make sure the cables are free all the way to the bottom of the system; you may need to cut some tie-warps on the way.
	
2.	Turn the system on its back (bottom-side up), and open the service door.
	
3.	Remove the four M3x8 Allen screws that attach the trolley to the system.

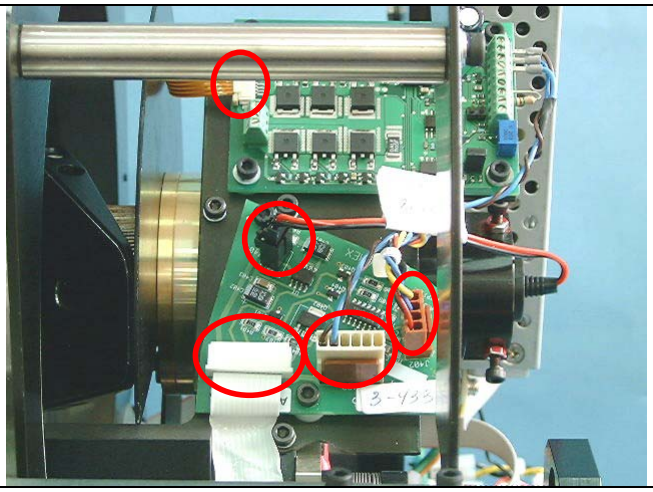
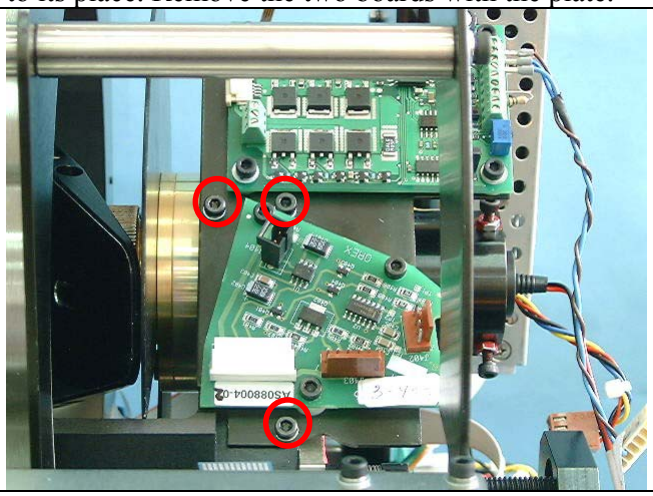
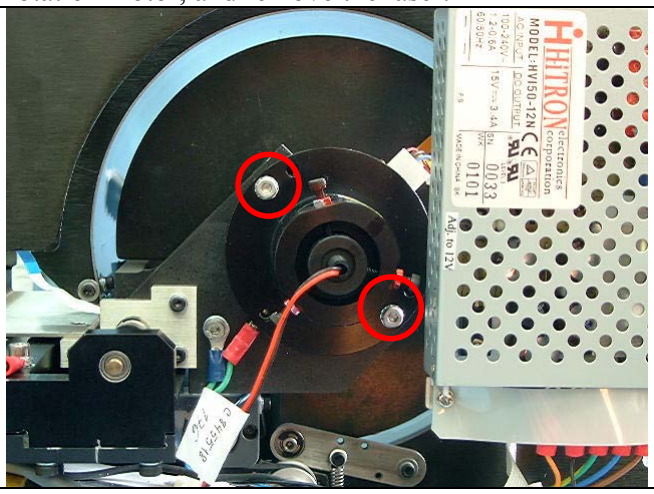
	 
4.	Pull the trolley down and out, until it is out of the system.
	
5.	Insert the trolley back into the system, and secure with the four M3x8 Allen screws.
6.	Route the motor and sensor cables, so that you will be able to pull them from the back of the system.
7.	Manually move the trolley to the location where the trolley pin is at its highest position.
8.	Place the system back on it bottom (base).
9.	Look into the system from the cassette load tray; you should see the trolley pin. The pin should stand out 4.5mm to 5.0mm above the tray surface, at its highest position.
10.	Connect the motor cable to J204 on the motion board and the sensor cable to J508 on the sensor board.
11.	Close the bottom service panel.

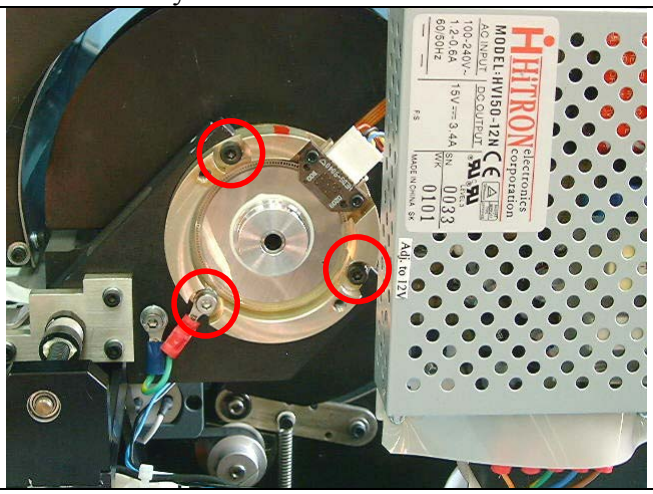
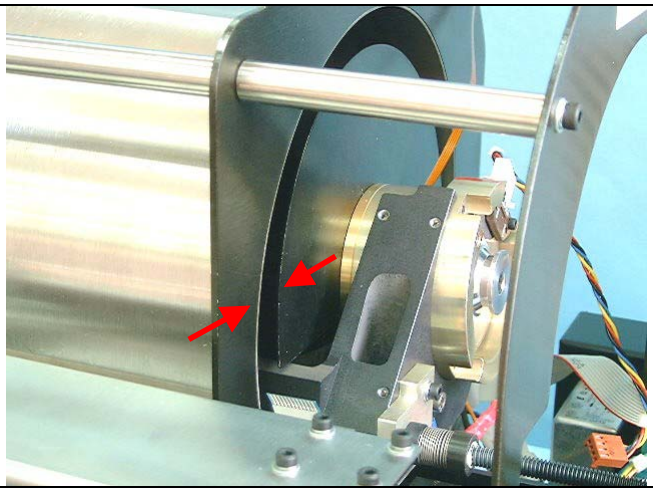
2.4.14 Replacing Slide Stepper motor

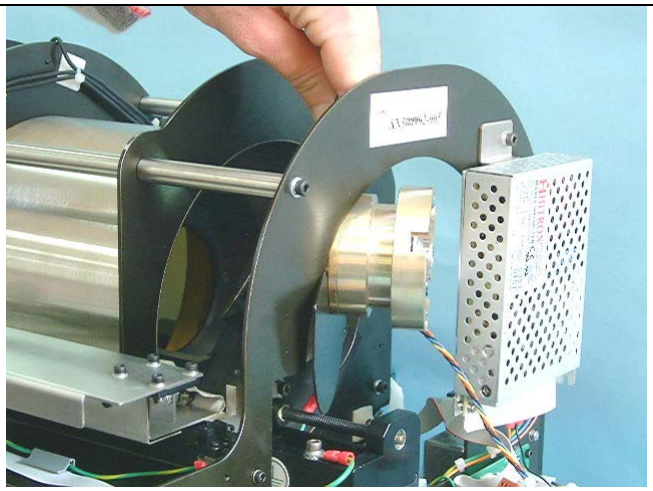
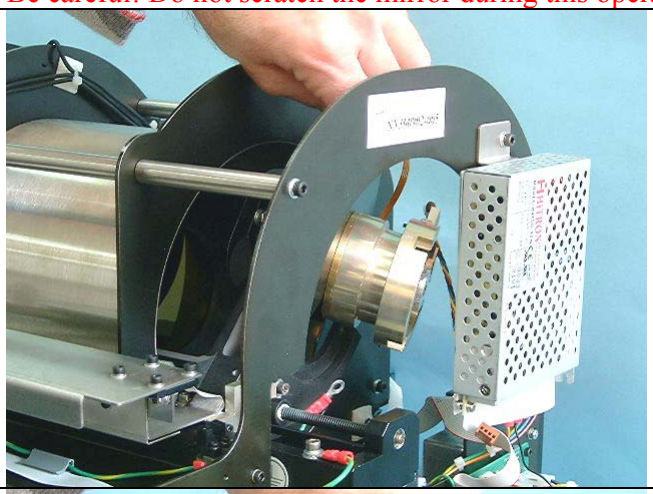
1.	Remove the M2.5x4 coupling screw.
	
2.	Remove the two M3x6 Allen screws that attach the left limit switch photo sensor, and remove the sensor from the motor bracket.
	
3.	Disconnect the motor cable from the connectors panel.
	

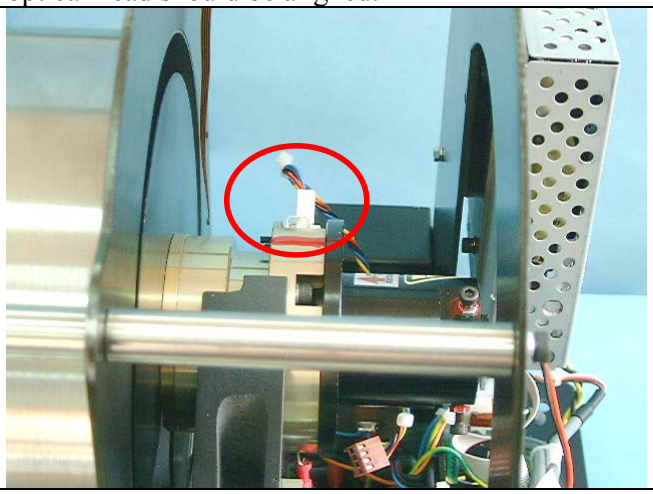
4.	Remove the two M4x10 Allen screws that attach the motor bracket to the slide, and remove the motor from the slide.
	
5.	Place the new motor and bracket on the slide. Attach the coupling on the motor axis and the long screw, and secure the motor bracket with the M4x10 Allen screws.
6.	Close the coupling screws on the motor axe and on the long screw and tighten.
7.	Connect the motor cable to its connector on the connectors panel.
8.	Mount the left limit switch sensor back on the motor bracket, and secure with the two M3x 6 Allen screws.

2.4.15 Replacing Rotational motor

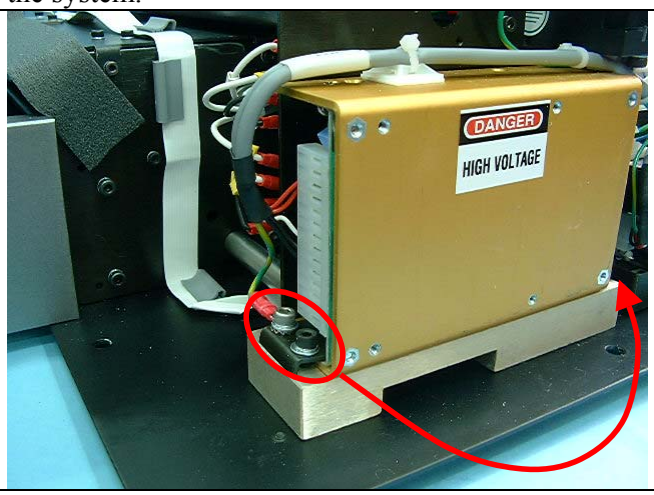
1.	Disconnect the cables from the Laser and Motor boards.
	
2.	Remove three M3x6 Allen screws that attach the boards' plate to its place. Remove the two boards with the plate.
	
3.	Remove two M4x12 Allen screws that attach the laser to the rotation motor, and remove the laser.
	

4.	Remove three M4x14 Allen screws that attach the rotation motor to the system.
	
5.	Move the slide head to the left by manually turning the long screw, until the big round light protector is in aligned with the drum.
	
6.	Remove the rotational motor from the system, by pulling it back to release it from the holder; follow the images to see how to take it out of the system. Be careful! Do not scratch the mirror of the optical head!

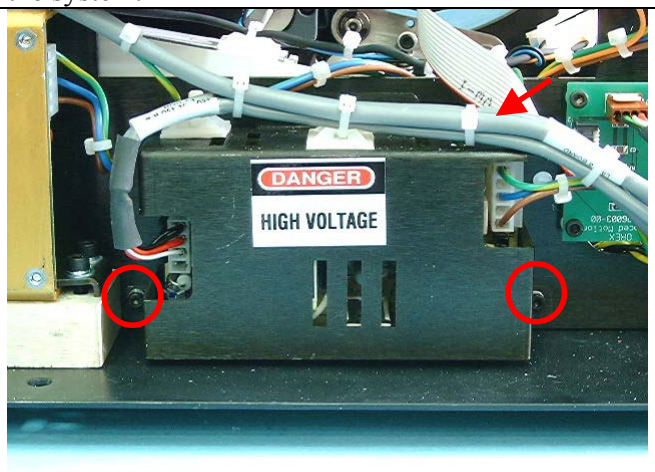
	
7.	Follow the steps in the following images to place the new optical head in the system. Be careful! Do not scratch the mirror during this operation.
	
8.	Secure the optical head to the system with the two M4x14 black Allen screws and one M4x14 silver Allen screw that attaches the ground cable.

9.	Place the laser on the optical head, and secure it with two M4x12 silver Allen screws; the red mark on the laser and the optical head should be aligned.
	
10.	Place the laser and motor boards in their place, and secure with the M3x6 Allen screws.
11.	Connect all the cables to the connectors on the boards; make sure to push the flex cable down, so that it would not be caught on the inside screws of the drum.

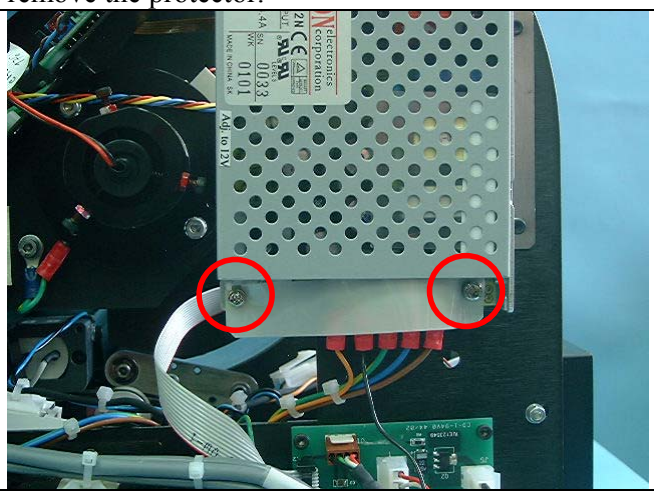
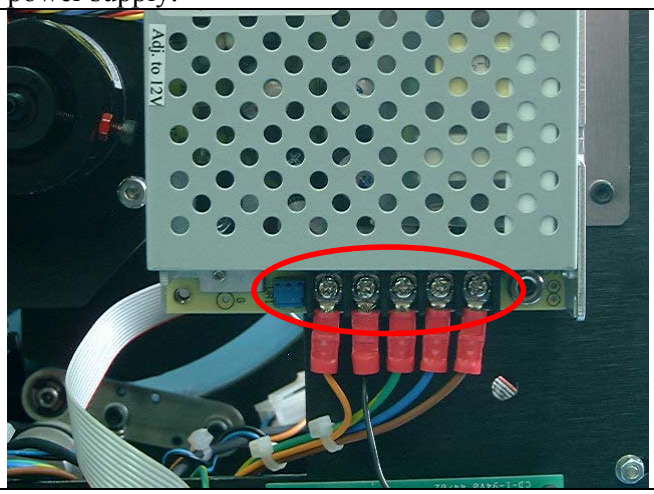
2.4.16 Replacing 15V power supply

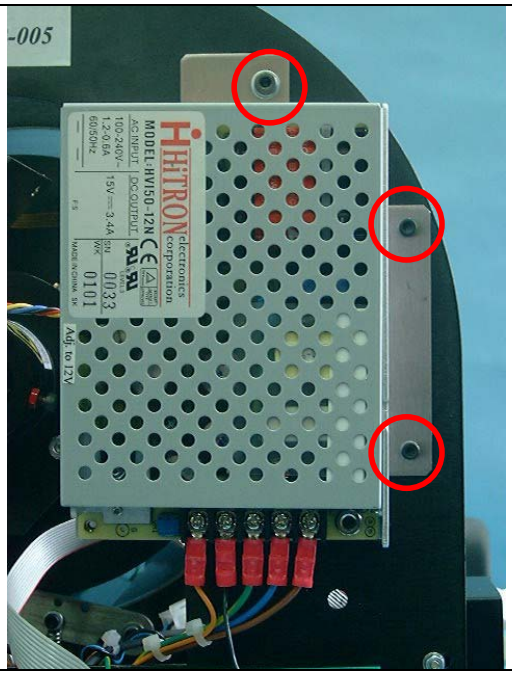
1.	Disconnect the input and output cables from the power supply.
2.	Remove four M3x8 Allen screws that attach the power supply to the system.
	
3.	Replace the power supply by the new one, and secure with the screws.
4.	Connect the input and output cables to the power supply connectors.

2.4.17 Replacing 5V/12V power supply

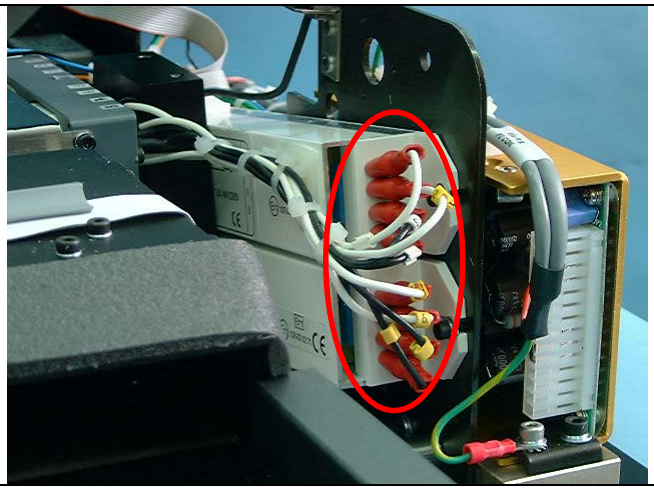
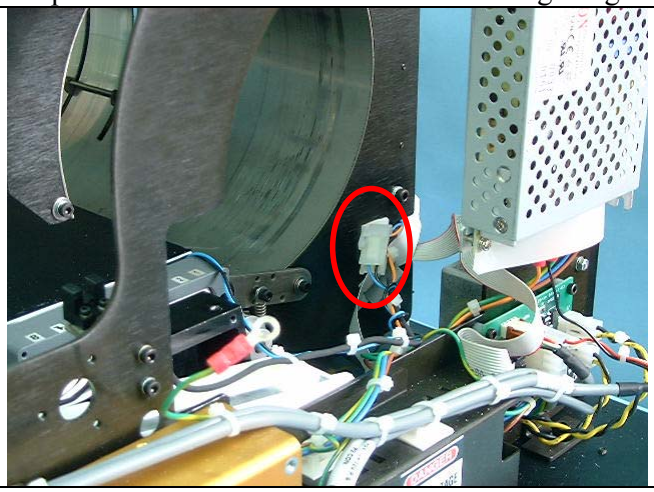
1.	Disconnect the input and output cables from the power supply.
2.	Remove three M3x6 Allen screws that attach the power supply to the system.
	
3.	Replace the power supply by the new one; replace and tighten the Allen screws, and connect the input and output cables.

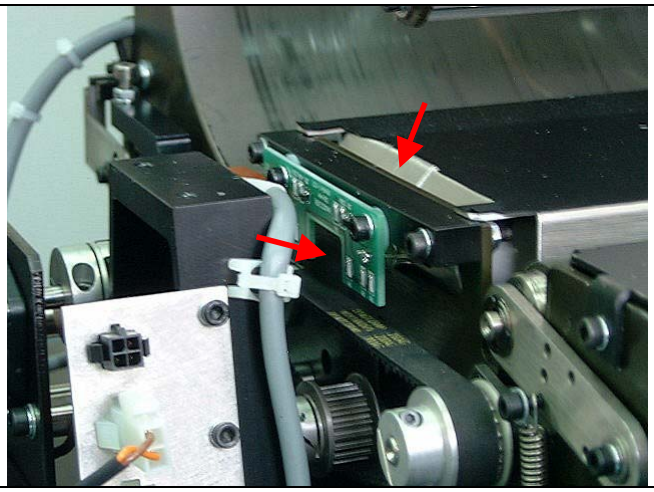
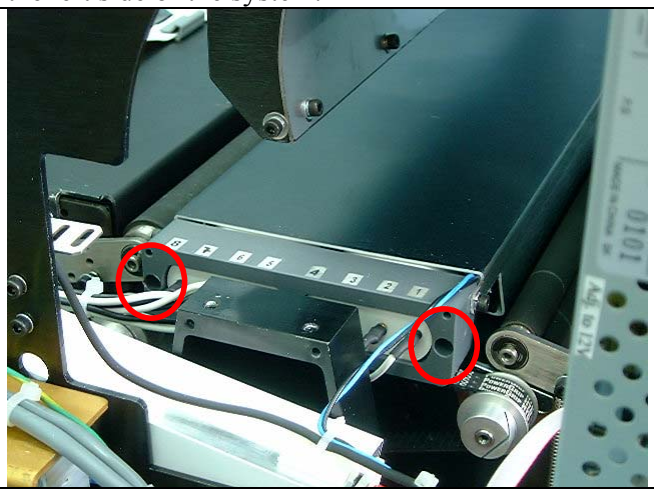
2.4.18 Replacing 12V power supply

1.	Remove two screws that attach the connectors protector and remove the protector.
	
2.	Remove the connectors' screws, and disconnect the wires from the power supply.
	
3.	Remove three M3x6 Allen screws that attach the power supply bracket to the system, and remove the power supply.

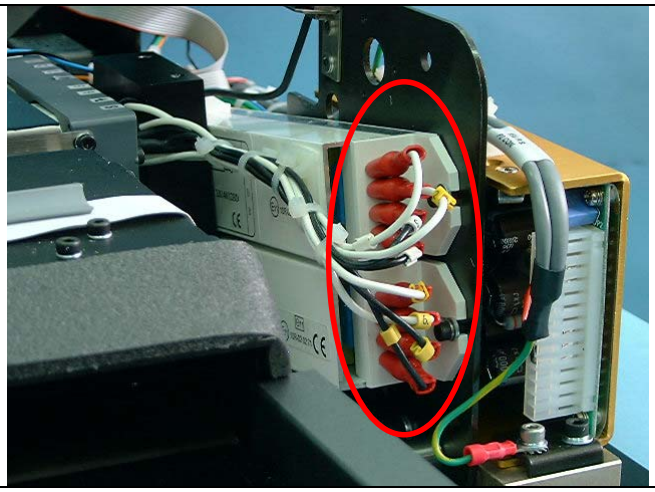
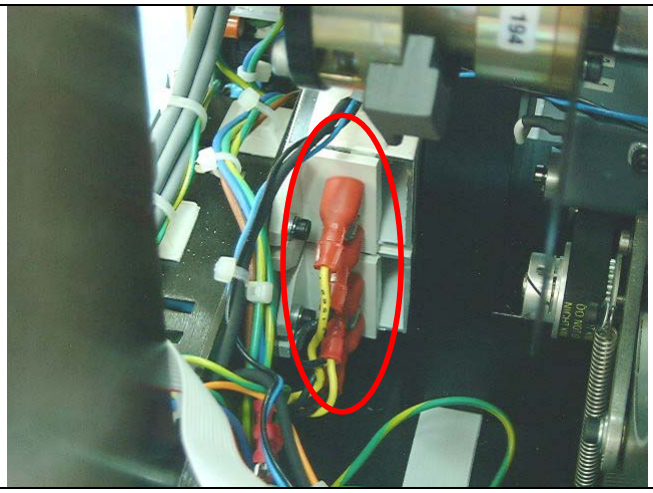
	
4.	Place the new power supply on the system, and secure it with three M3x6 Allen screws.
5.	Connect the cables to the power supply (refer to component description to see the order of the cables) and put the plastic protector on it.

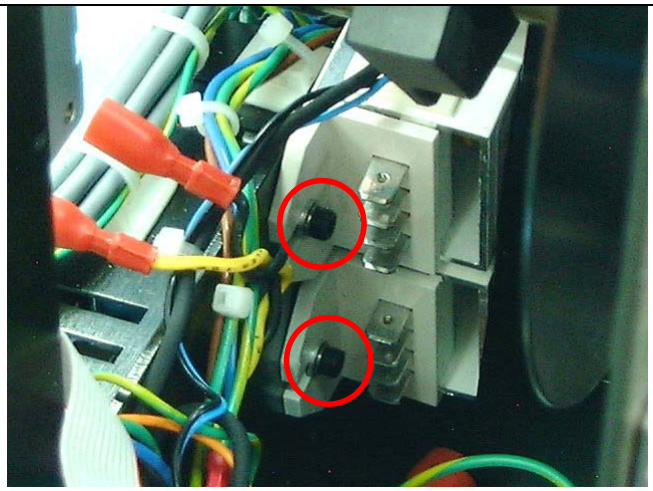
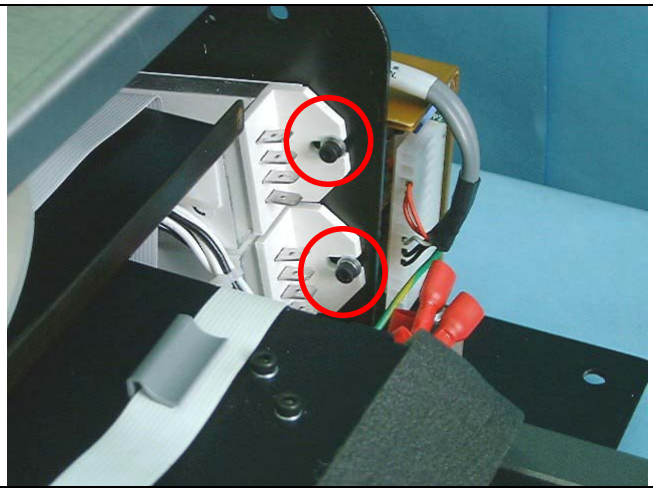
2.4.19 Replacing Erase Lamps

1.	Remove the slide as described in Section 2.4.21
2.	Disconnect the wires that lead from the erase lamps to the converters connectors.
	
3.	Disconnect the blue and black cable that leads from the erase lamps to the white connector in the following image.
	
4.	Remove one M3x8 Allen screw that attaches the erase lamps to the right side of the system.

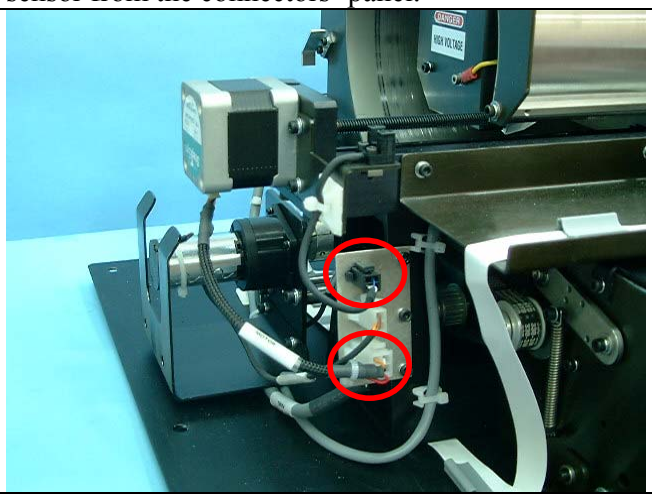
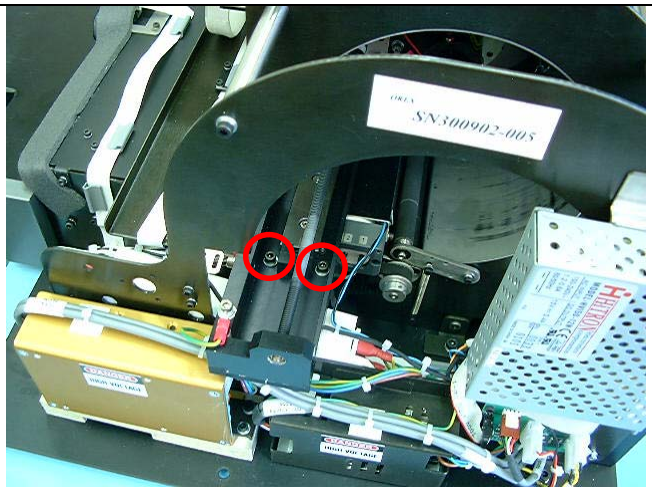
	
5.	Remove two M3x14 Allen screws that attach the erase lamps to the left side of the system.
	
6.	Lift the erase lamps and remove them from the system (you may need to cut some tie-wraps to free the cables).
7.	Place the new lamps in position, and secure with the screws.
8.	Connect the blue and black cable, and the cables that leads from the erase lamps to the converters, by the numbers 1 to 8 from top to bottom.
9.	Return the slide to its place as describe in Section 2.4.21.

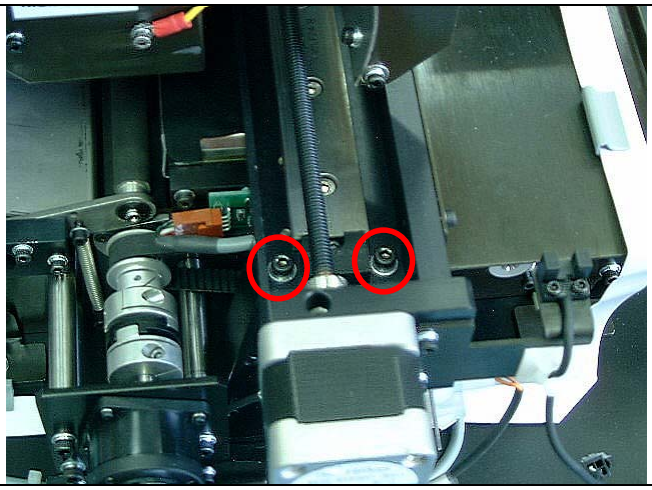
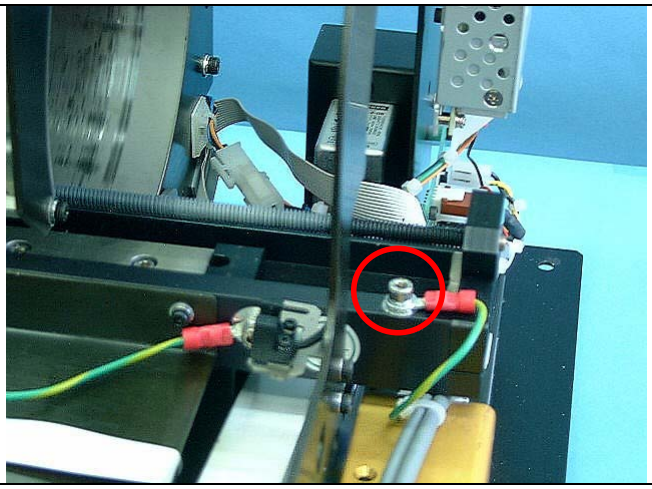
2.4.20 Replacing Inverters

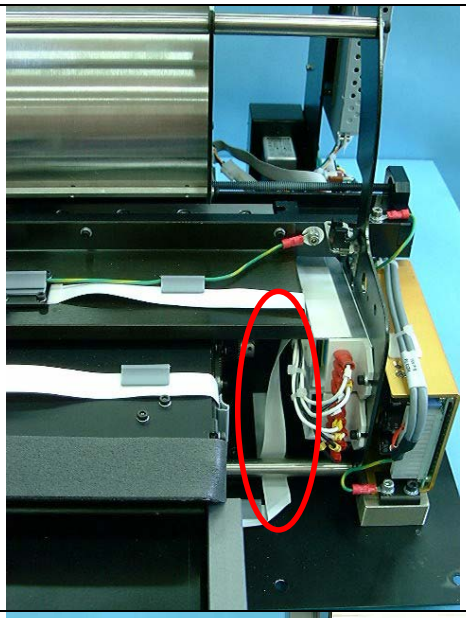
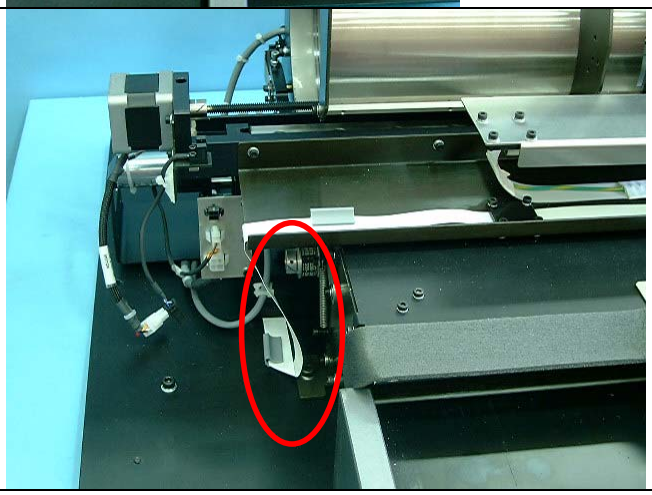
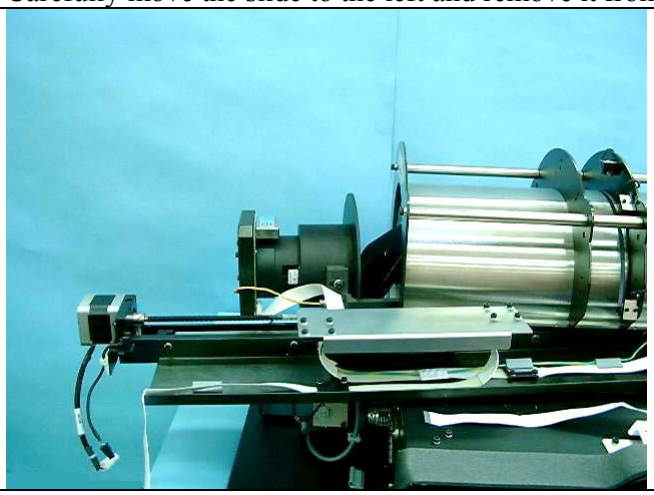
1.	Move the optical head to the middle of the drum, using the Scanner Interface Setup → Diagnostic tab. Turn off the system before closing the Setup window.
2.	Disconnect the cables that going from the erase lamps to the converters.
	
3.	Disconnect the cables that lead from the erase lamps board to the converters.
	
4.	Remove the four M3x6 Allen screws that attach the converters to the system.

	
	
5.	Place the new converters on their place, insulate between the converters and the system body with the plastic clips, and secure the converters with the four Allen screws.
6.	Connect the cables leading from the erase lamps board to the converters; one cable for each converter, black wire bottom and yellow wire top.
7.	Connect the cable leading from the erase lamps to the converters by matching the numbers 1 to 8 from top to bottom.

2.4.21 Replacing the Slide

1.	Move the carrier to the middle of the drum.
2.	Turn of the system before exiting the diagnostic mode.
3.	Disconnect the slide stepper motor and the left limit switch photo-sensor from the connectors' panel.
	
4.	Remove the four M4x10 Allan screws (black) that holds the slide to the slide base.
	

	
5.	Remove one M4x6 Allan screw (silver) that holds the ground wire to the slide.
	
6.	Disconnect the flex cables from J203 on the motion board and from the USB board.
7.	Pull the flex cables from both sides of the system and make sure they are free and will not snag.

	
	
8.	Carefully move the slide to the left and remove it from the system.
	

3. Component Description

3.1 General

The PcCR 1417 consists of 16 major assemblies, which can be replaced in the field in case of malfunction:

1. USB Board
2. Motion Board
3. Sensor Board
4. Lamps board
5. Laser Assembly
6. Laser Board
7. PM Assembly (Tube + Board)
8. Roller Motor
9. Stepper Motor - Carriage
10. Stepper Motor - Slide
11. Rotation Motor
12. 15 V Power Supply
13. 5 V / 12 V Power Supply
14. 12 V Power Supply
15. Erase Lamps
16. Erase lamp Converters

This chapter includes description for each part, including its location and wiring.

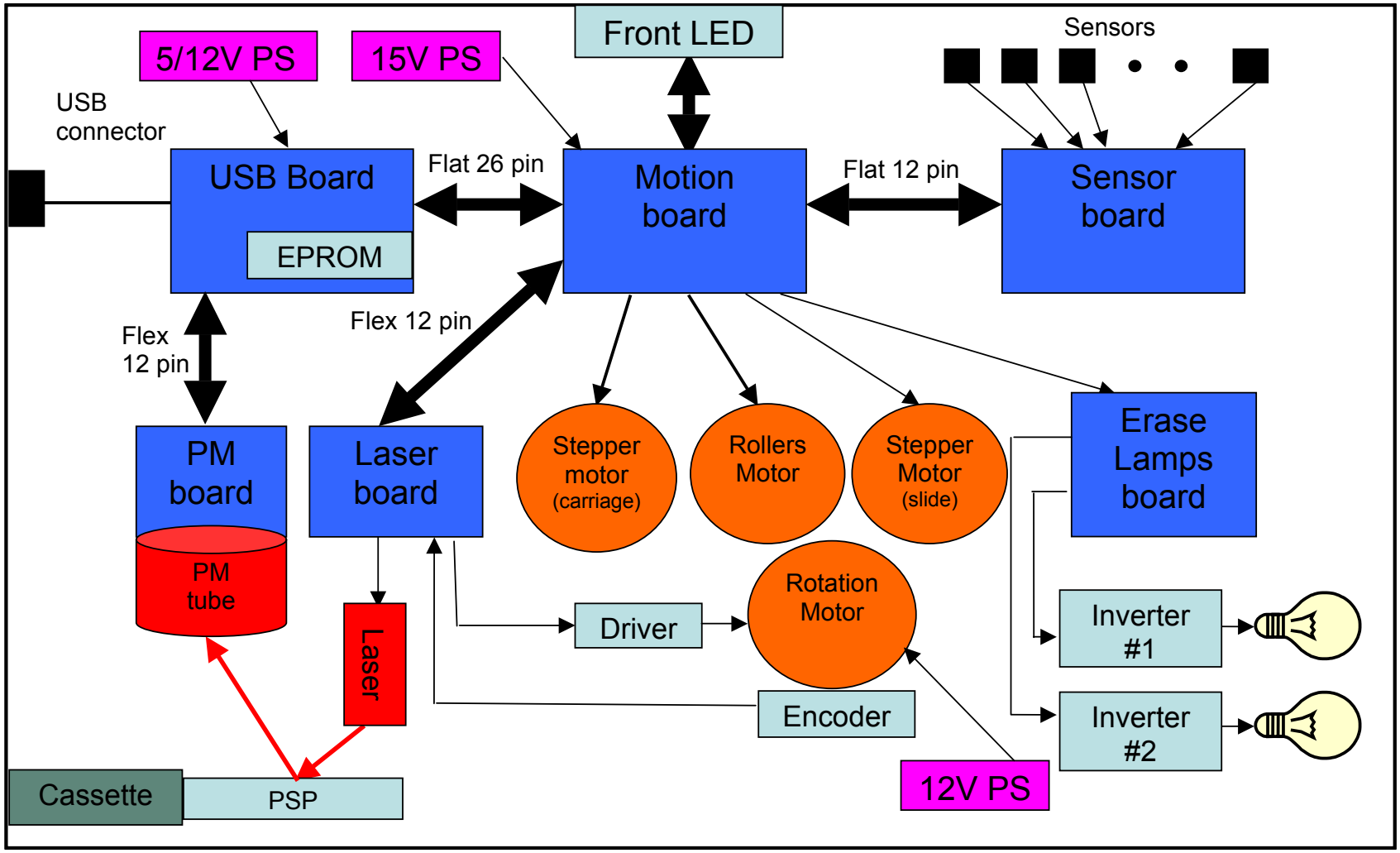
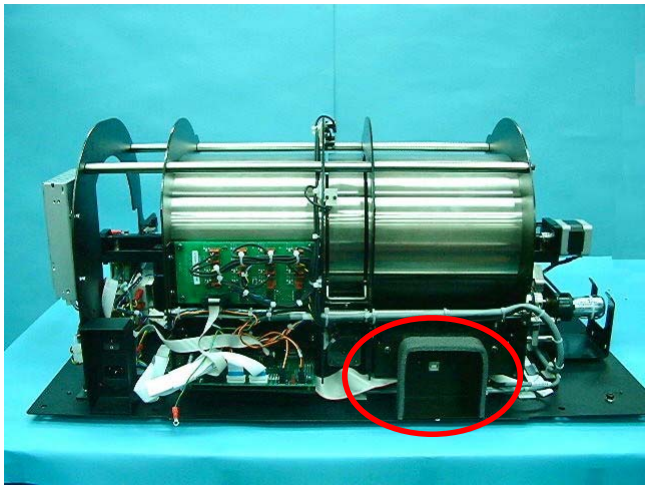


Figure 1: Component Description – Block Diagram

3.2 USB

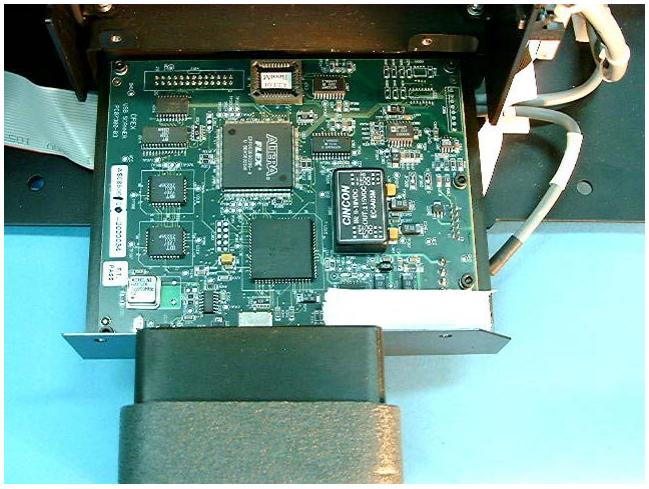
3.2.1 Location

Back View



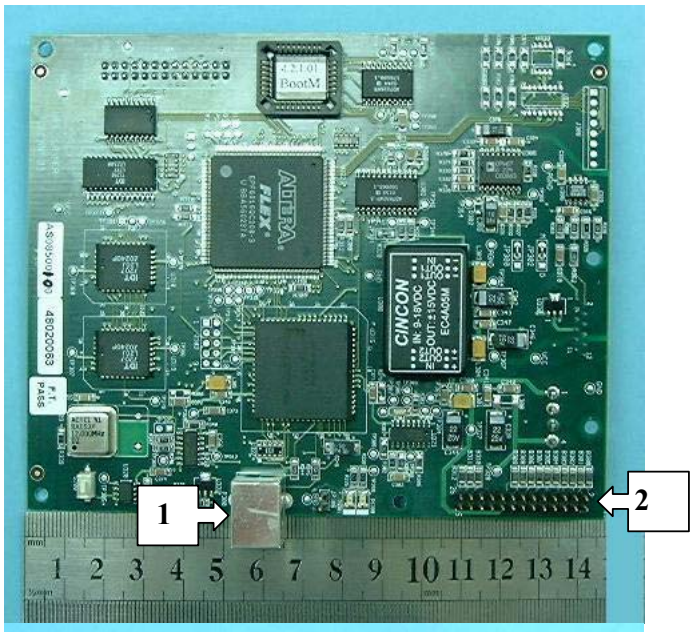
3.2.2 Component

Top View

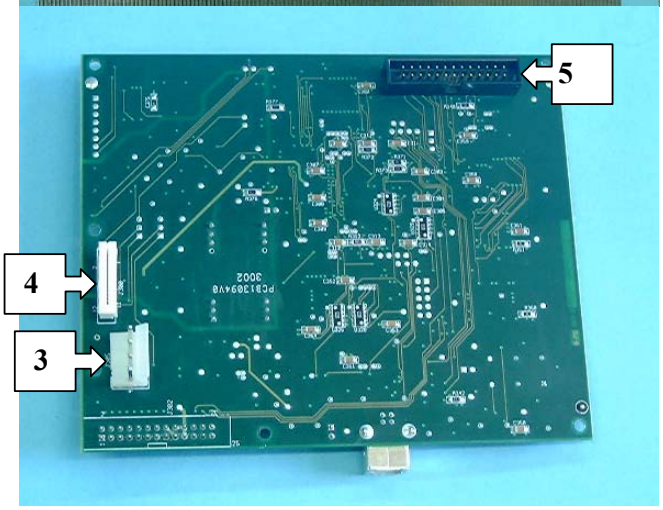


3.2.3 Description

Top View



Bottom View

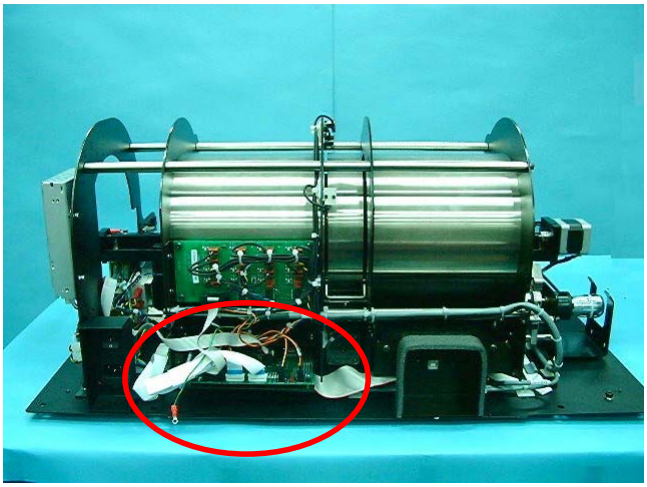


Connector 1	**Destination: USB connector on pc.**		
Connector 2	**Serial EPROM**		
Connector 3 J305	**Destination: 5v/12v power supply.**		
	1	Red	5v
	3	Black	GND
	4	Yellow	12v
Connector 4 J300	**Destination: flat cable to J1 on pm card.**		
Connector 5 J304	**Destination: flex cable to J200 on motion card.**		

3.3 Motion board

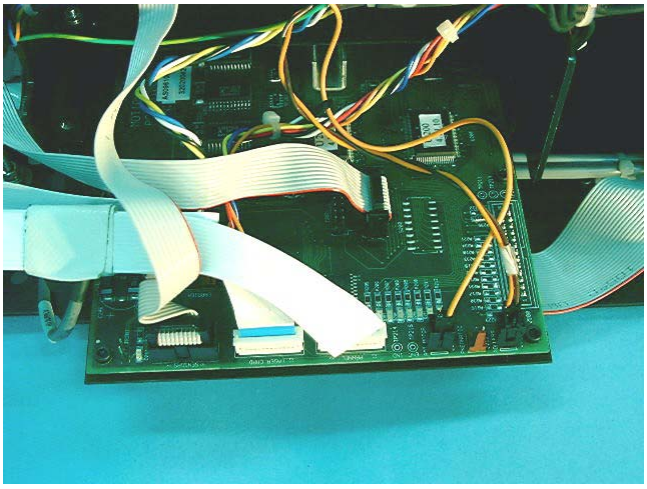
3.3.1 Location

Back View



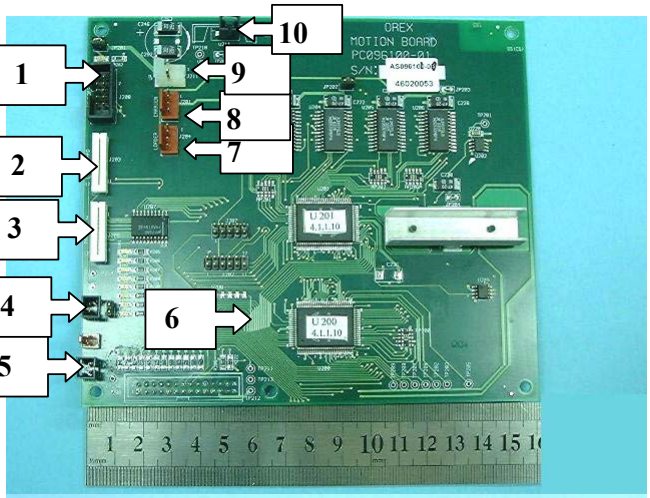
3.3.2 Component

Top View

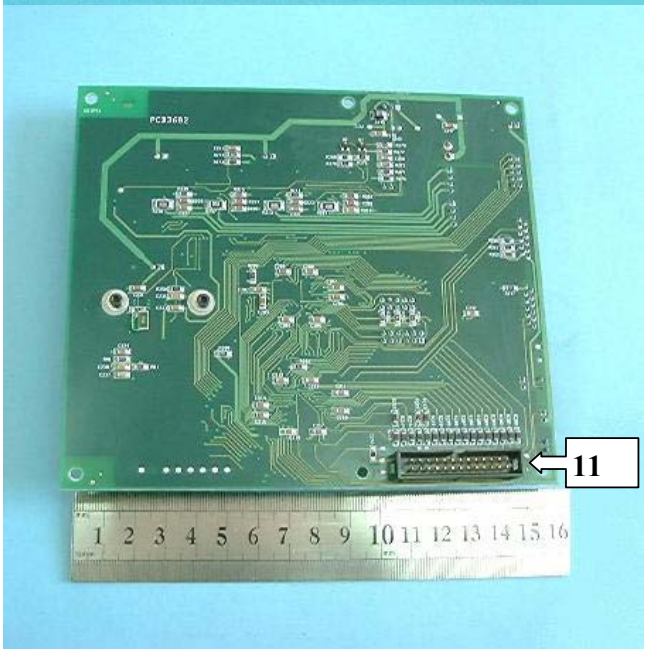


3.3.3 Description

Top View



Bottom View

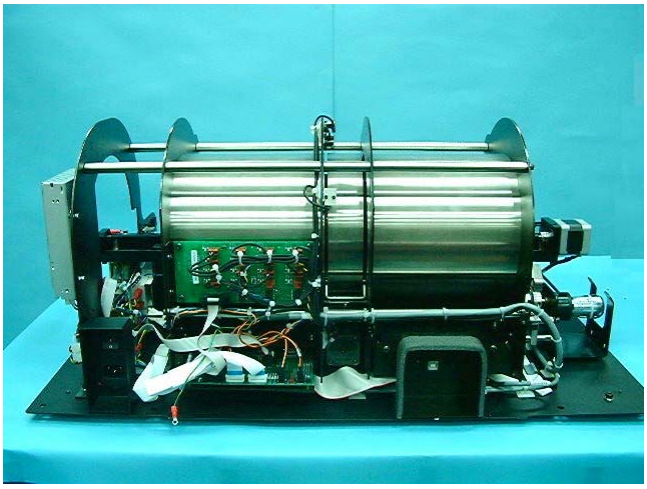


Connector 1 J208	**Destination: J500 on sensor card**		
Connector 2 J203	**Destination: J401 on laser card.**		
Connector 3 J205	**Destination: J1 on front panel led card.**		
Connector 4 J213	**Destination: 12v power supply.**		
	1	orange	12v
Connector 5 J206	**Destination: connectors panel (rollers motor).**		
	1	orange	12v
	2	Brown	GND
Voltage on J206:	Rollers forward +12v ; rollers backwards -12v ; rollers stop 0v		
Connector 6 J202	**Destination: J2 on enhanced motion card.**		
Connector 7 J204	**Destination: loader.**		
	Orange + blue	130Hz load/unload	
	Red + yellow	130Hz load/unload	
Connector 8 J201	**Destination: connectors panel to stepper motor.**		
	Yellow + black	11KHz moving left/right ; 0KHz stop	
	Blue + white	11KHz moving left/right ; 0KHz stop	
Connector 9 J211	**Destination: 15v power supply.**		
	1	black	GND
	2	red	15v
Connector 10	**Destination: 5v power supply.**		
	1	black	GND
	2	red	5v
Connector 11 J200	**Destination: J302 on USB card**.		

3.4 Sensor Board

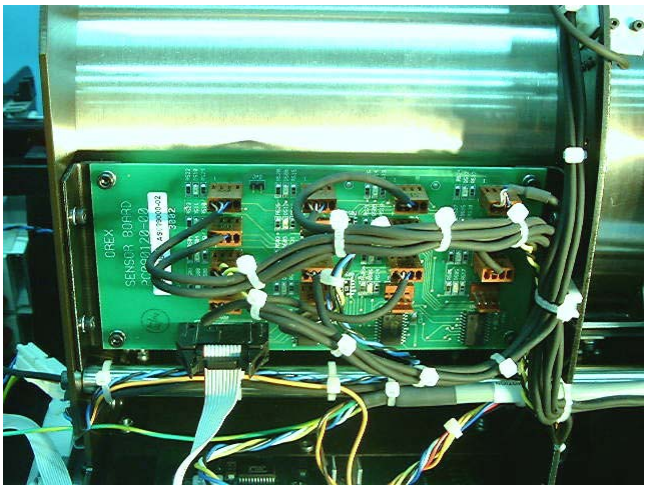
3.4.1 Location

Back View



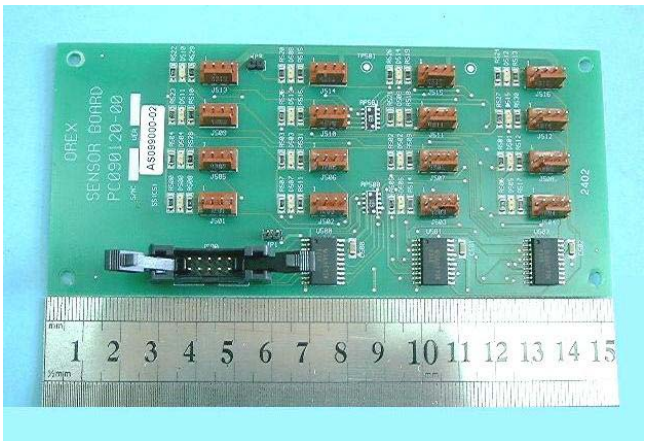
3.4.2 Component

Back View



3.4.3 Description

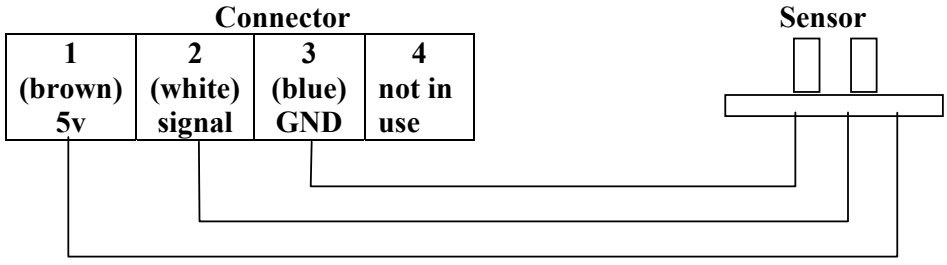
Top View



	J513	J514	J515	J516
	J509	J510	J511	J512
	J505	J506	J507	J508
	J501	J502	J503	J504
J500				

J500 connector connects to J208 on motion card.
J501 connects to sensor 4 on the drum.
J502 connects to sensor 5 on the drum.
J505 connects to sensor 1 on the drum.
J506 connects to sensor 2 on the drum.
J507 connects to sensor 3 on the drum.
J508 connects to loader sensor in back position.
J509 connects to roller sensor.
J511 connects to W0 sensor.
J513 connects to cassette presence sensor.
J514 connects to cassette lock sensor.
J515 connects to right limit sensor.
J516 connects to left limit sensor.

Typical Sensor connections



Sensor on (flag in sensor)	**1**	**Brown**	**5v always**
	2	**White**	**0v**
	3	**Blue**	**GND always**
	4	**Not in use**	

Sensor off (flag not in sensor)	**1**	**Brown**	**5v always**
	2	**White**	**5v**
	3	**Blue**	**GND always**
	4	**Not in use**	

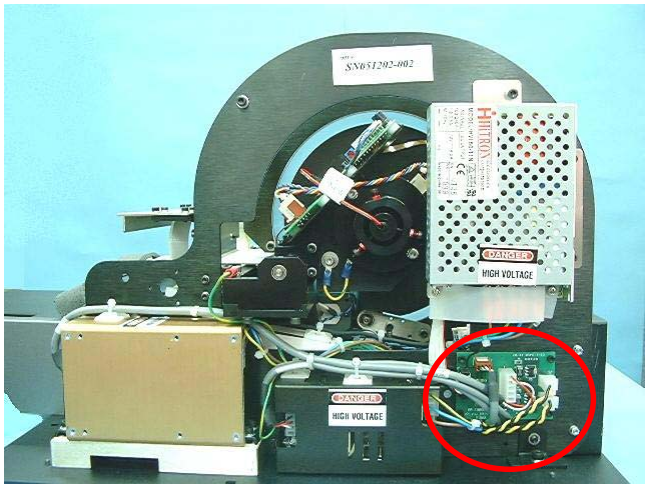
Note:
Measuring voltage:

1. **All sensors except J511: measure between pin 2 & 3 and insert object between sensors.**
2. **For J511 only: measure between pin 2 & pin 3 from different sensor and insert cassette to system. The voltage should be between 4.5-5v.**

3.5 Erase lamps board

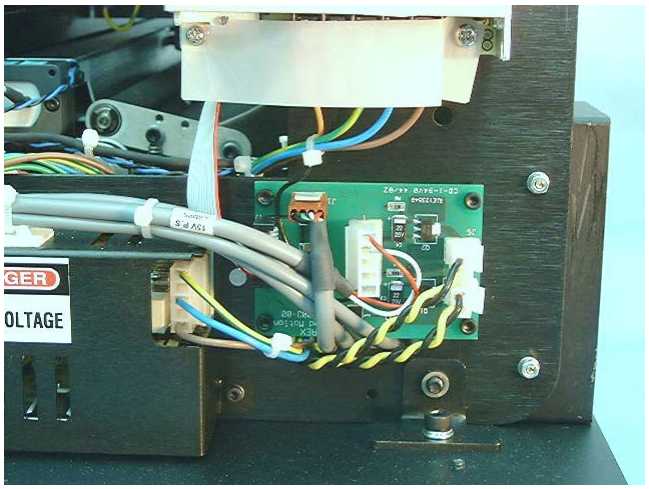
3.5.1 Location

Right-side View



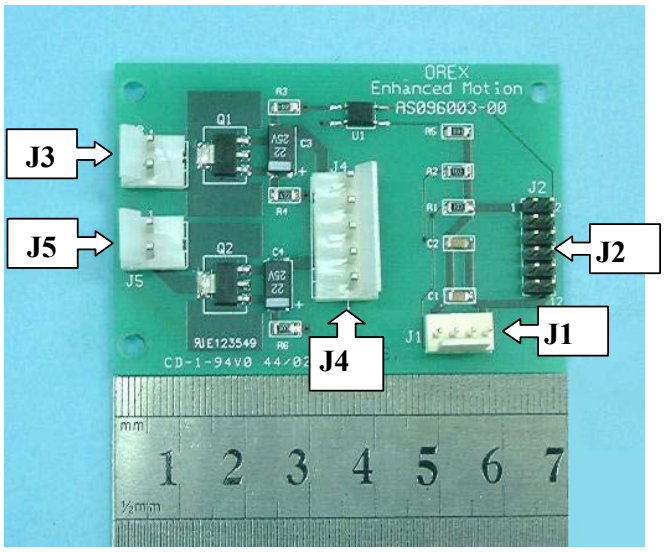
3.5.2 Component

Right-side View



3.5.3 Description

Top View

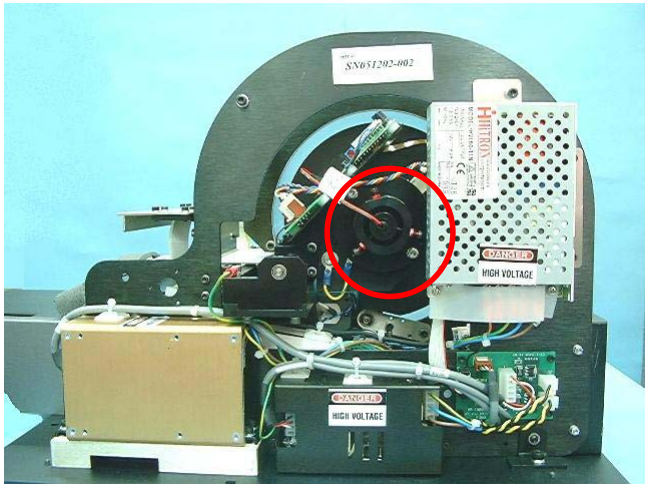


J1	**Destination: J1 ON Lamp Sensor card**		
	1	Red	5v
	2	White	Lamp on 0v; lamp off 2.5-5v
	3	Green	Lamp on 0v; lamp off 2.5-5v
	4	Black	GND
J2	**Destination: J202 on motion card**		
J3	**Destination: lamps inverter 1**		
	1	Yellow	Lamps on 15v;lamp off 0v
	2	Black	GND
J4	**Destination: p2 on 15v power supply**		
	1	Red	15v
	2	White	GND
J5	**Destination: lamps inverter 2**		
	1	Yellow	Lamps on 15v; lamps off 0v
	2	Black	GND

3.6 Laser

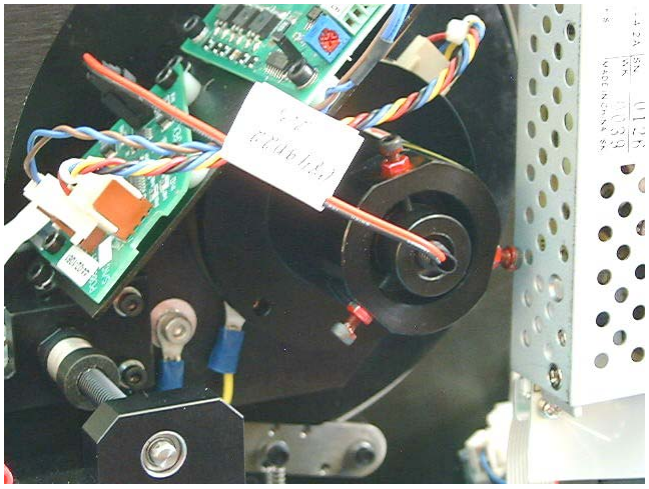
3.6.1 Location

Right-side View

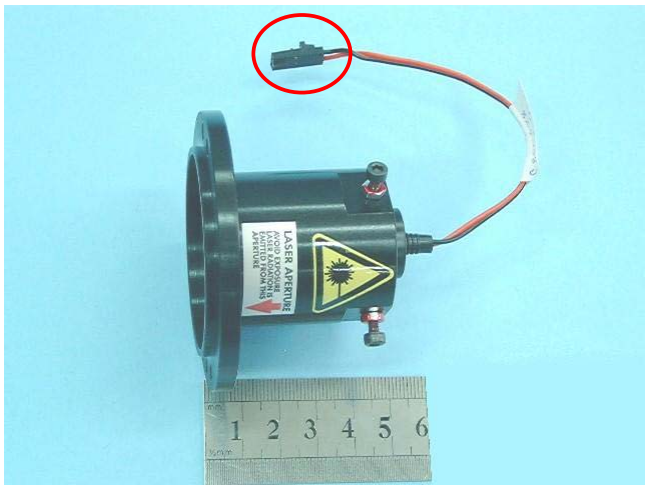


3.6.2 Component

Right-side View



3.6.3 Description

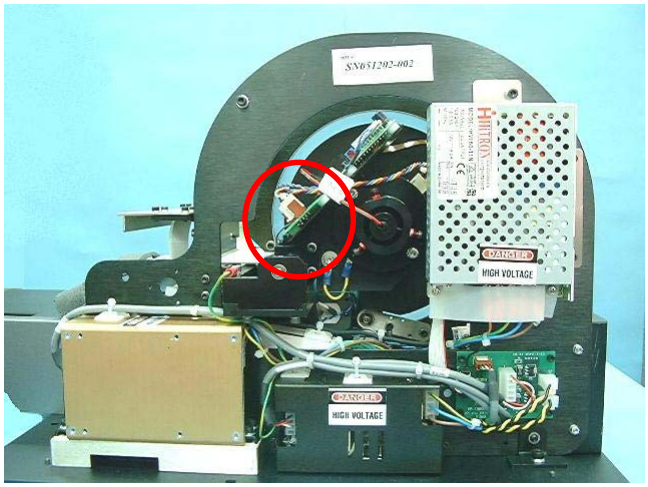


J404	Destination: laser card.		
	1	Red	Laser On 3.3V
	2	Black	GND

3.7 Laser board

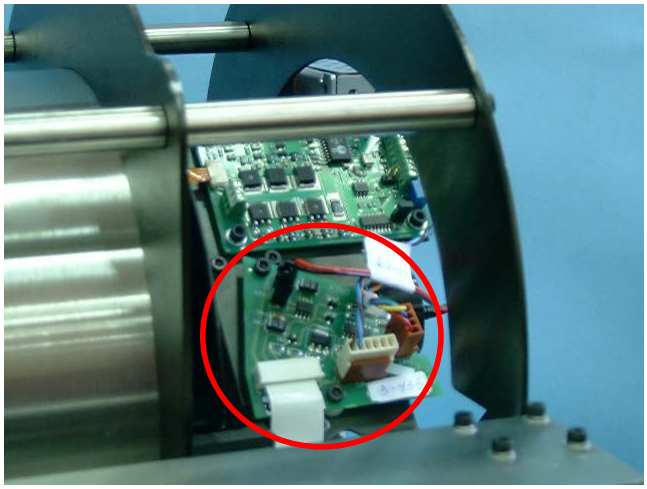
3.7.1 Description

Right-side View



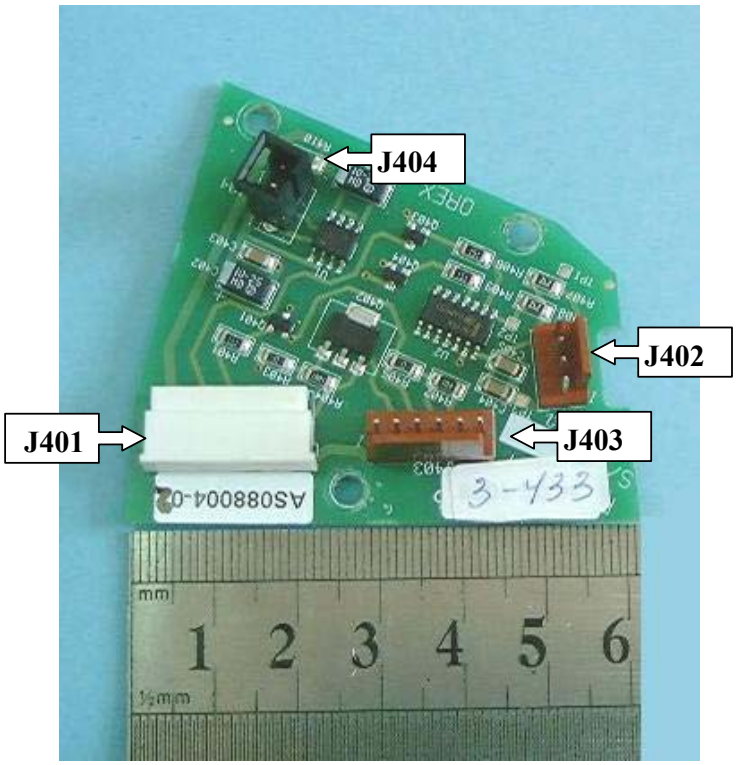
3.7.2 Description

Front View – Right hand side



3.7.3 Description

Top View

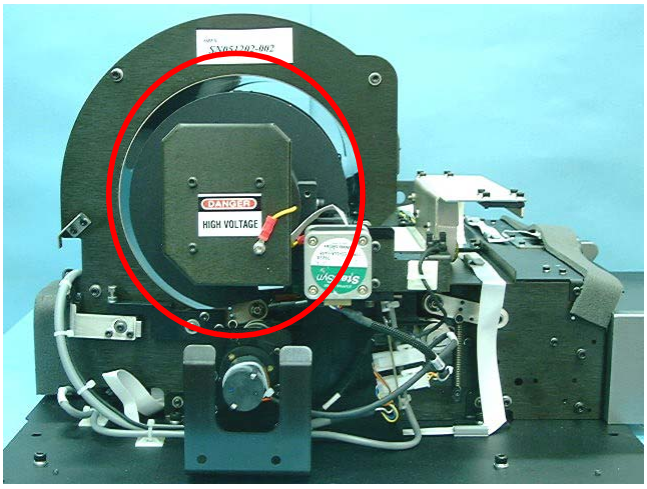


J401	**Destination: J203 on motion card.**		
J402	**Destination: encoder reader.**		
	1	Red	GND
	2	Black	Index 41±0.5 Hz
	3	Blue	Encoder 41± 0.5 KHz
	4	Yellow	5v
J403	**Destination: rotation motor card.**		
	1	Brown	GND
	2	Blue	12v rotation motor on.
J404	**Destination: laser assembly.**		
	1	Red	Laser On 3.3V
	2	Black	GND

3.8 PM Assembly

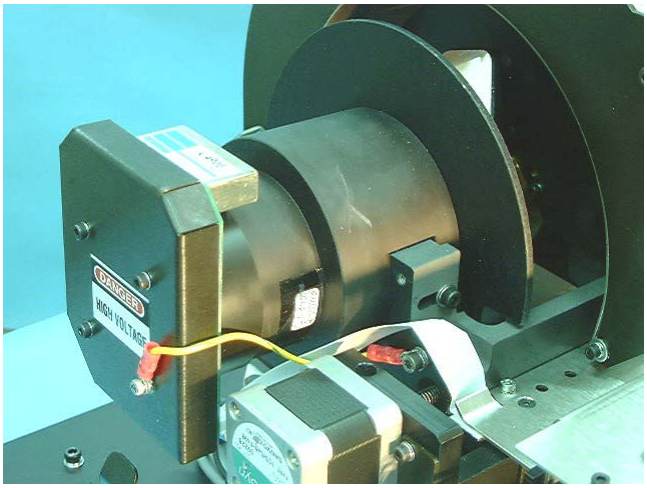
3.8.1 Location

Left-side View



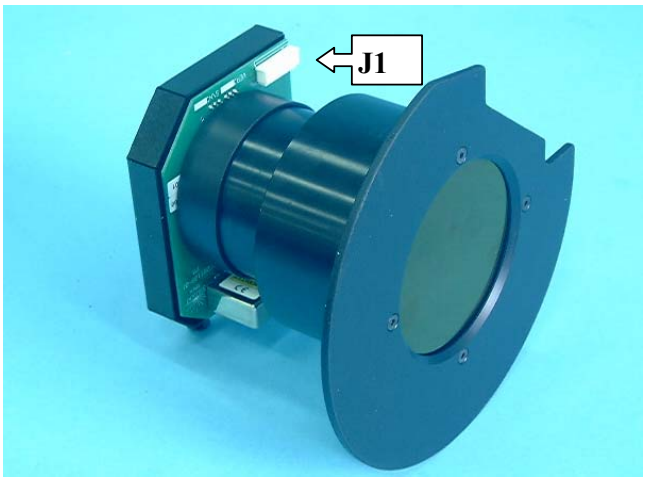
3.8.2 Component

Left-side View



3.8.3 Description

Bottom View

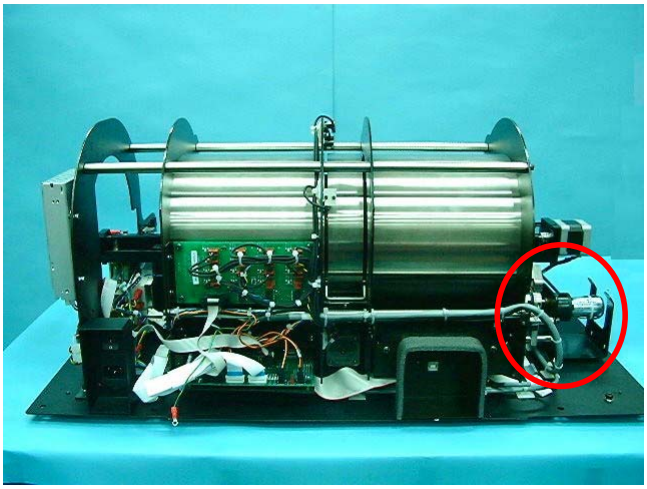


J1	Destination: J300 on USB card.

3.9 Rollers motor

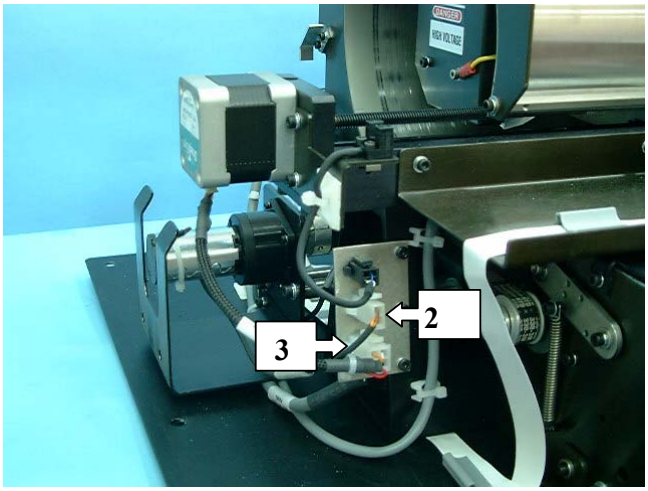
3.9.1 Location

Rear View



3.9.2 Description

Front View

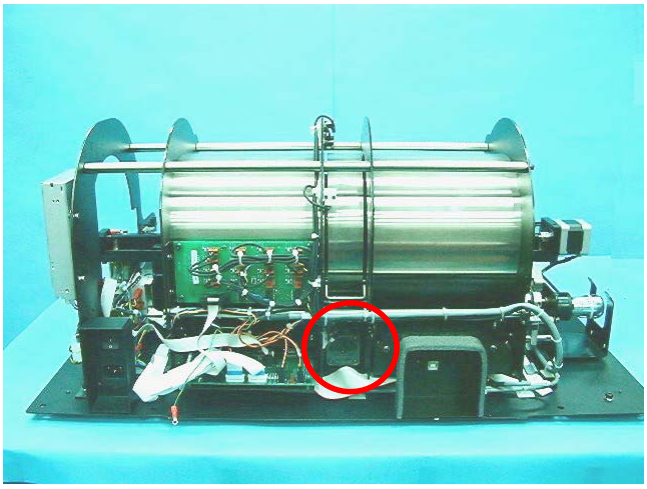


Connector's panel (conn 2) to the rollers motor.		
1	Orange	Rollers forward +12v ; rollers backwards -12v ; rollers stop 0v.
2	Brown	GND.

3.10 Stepper Motor – Carriage

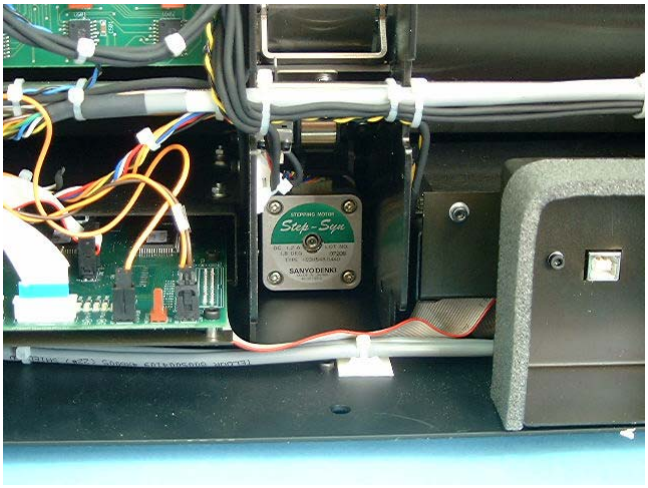
3.10.1 Location

Back View

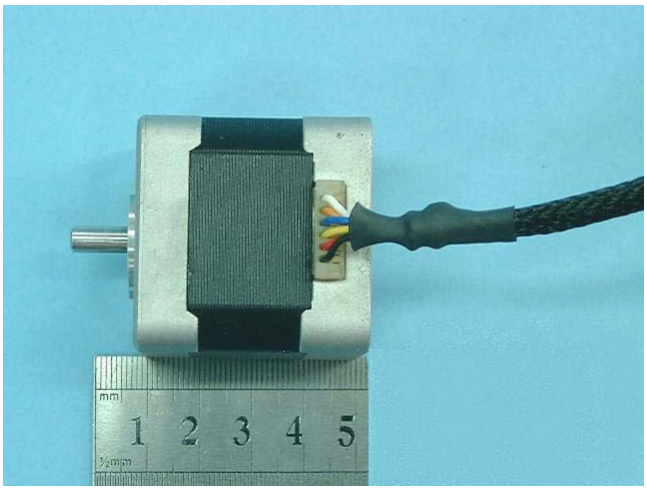


3.10.2 Component

Back View



3.10.3 Description

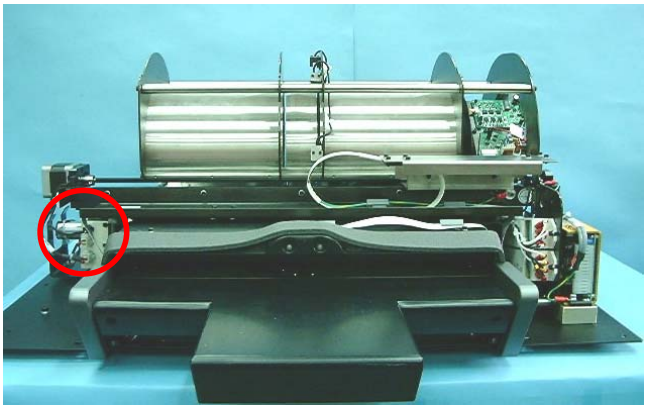


J204	Destination: J204 on motion card.	
	Orange + blue	130Hz load/unload
	Red + yellow	130Hz load/unload

3.11 Stepper Motor – Slide

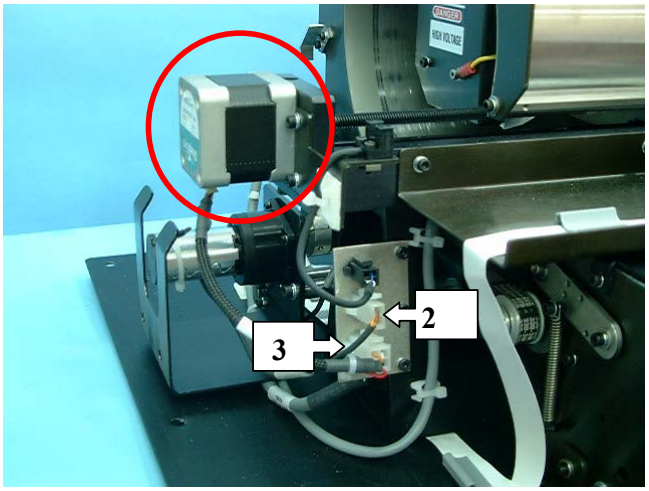
3.11.1 Location

Front View

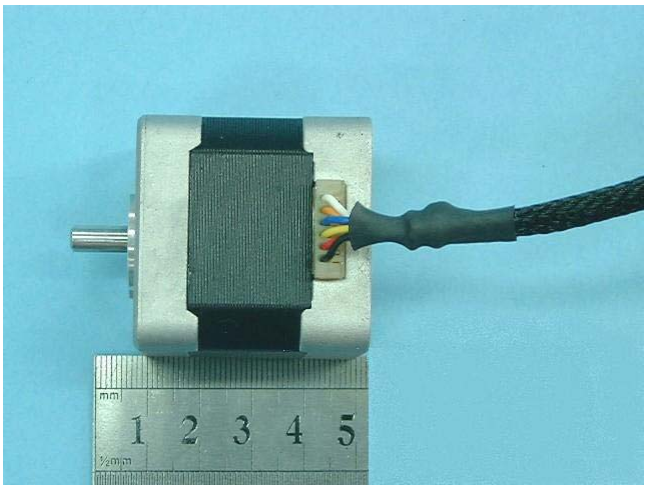


3.11.2 Component

Front View – Left hand side



3.11.3 Description

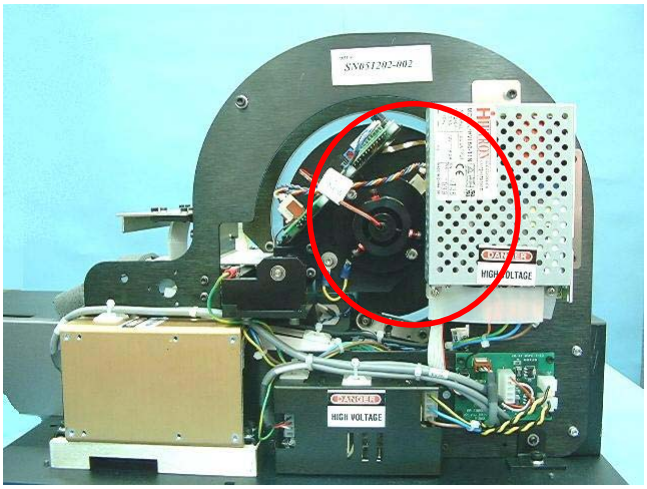


Connector's panel (conn 3) to J201 on motion card.	
Orange + white	11KHz moving left/right ; 0KHz stop
Black + yellow	11KHz moving left/right ; 0KHz stop
Connector's panel (conn 3) to stepper motor.	
Yellow + black	11KHz moving left/right ; 0KHz stop
Blue + white	11KHz moving left/right ; 0KHz stop

3.12 Rotation motor

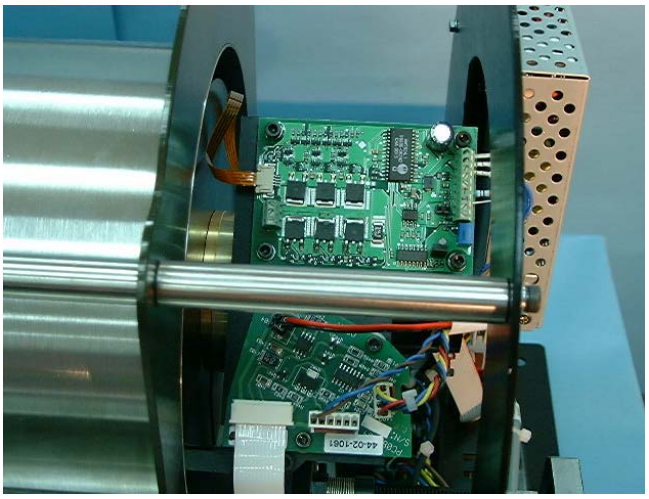
3.12.1 Location

Right-side view

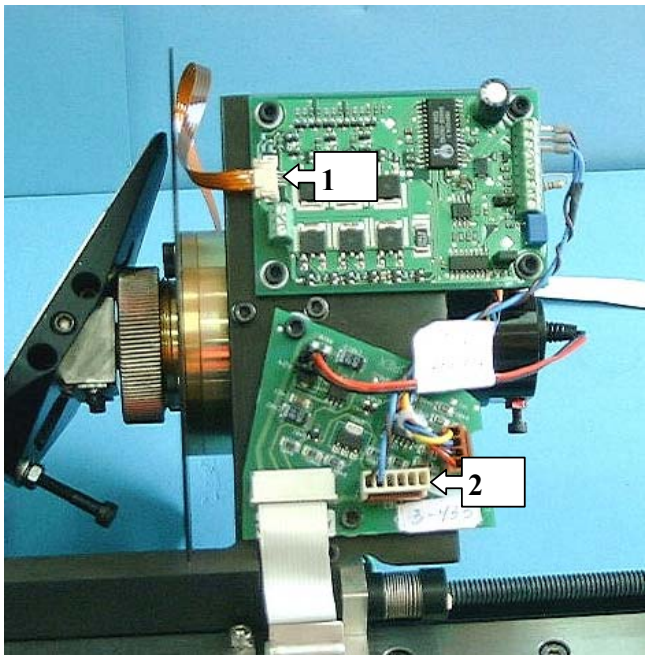


3.12.2 Component

Front view – right side



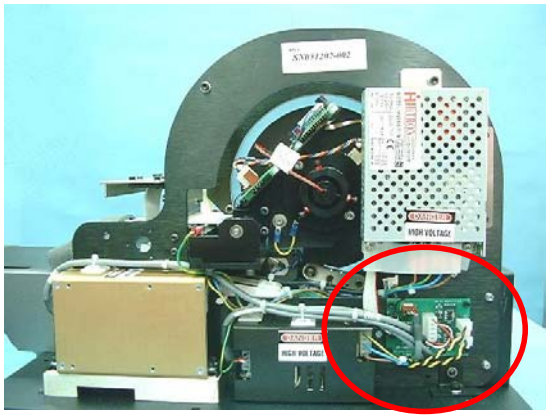
3.12.3 Description



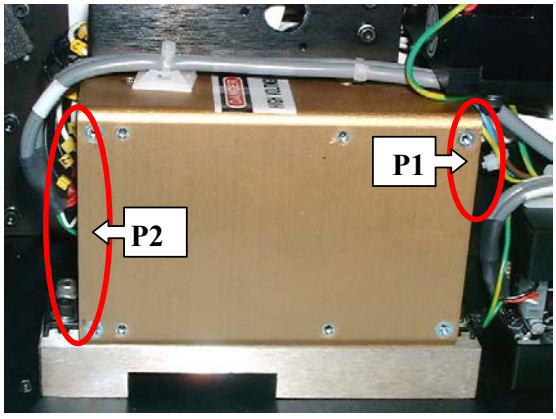
1	**Flat cable from rotation motor to the rotation motor driver card.**			
2	**Destination: J403 on laser card.**			
	J403	1	Brown	GND
		2	Blue	12v rotation motor on.

3.13 15v power supply

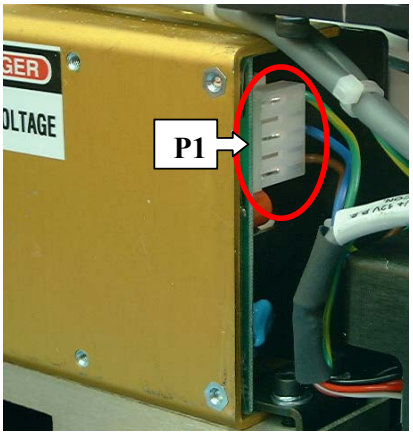
3.13.1 Location

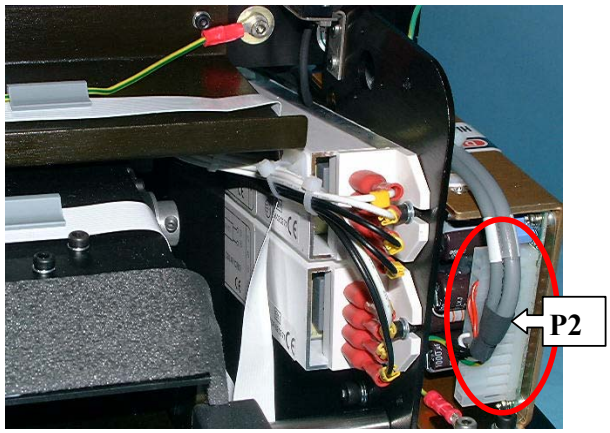


3.13.2 Component



3.13.3 Description

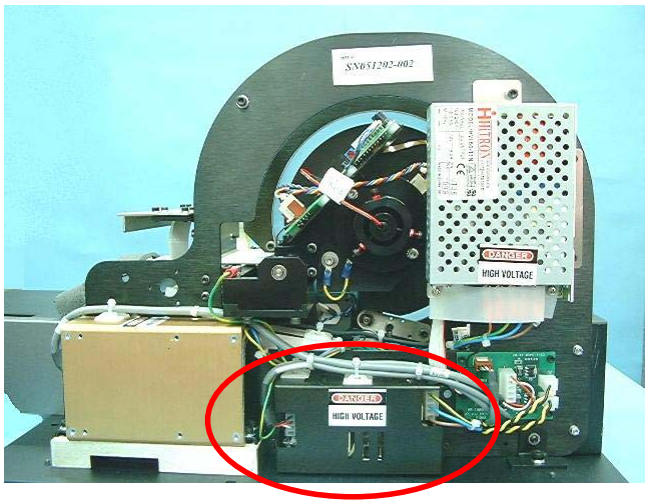




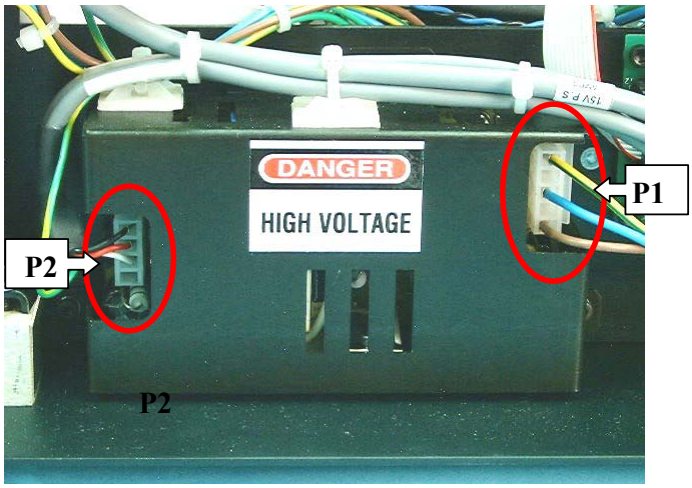
P1	**Source: AC input power.**			
P2	**Destination: J4 on lamps board and J211 on motion card.**			
	Cable 1	**Destination: J4 on lamps board.**		
		3	Red	15v
		8	White	GND
		10	Black	Power supply 12v (com)
	Cable 2	**Destination: J211 on motion card.**		
		4	Red	15v
		9	Black	GND

3.14 12V/5V power supply

3.14.1 Location



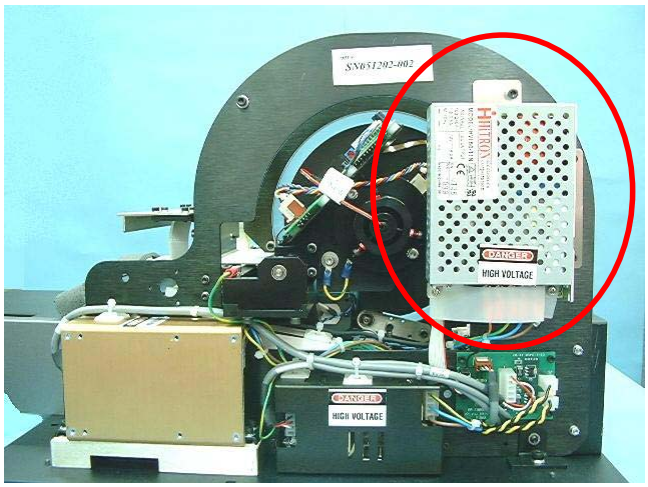
3.14.2 Component & Description



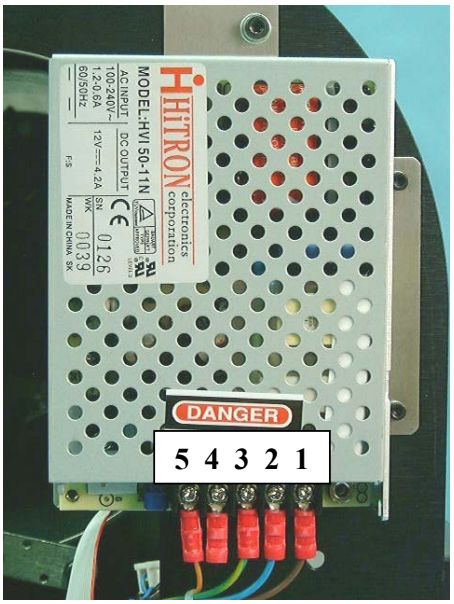
P1	**Source: AC INPUT POWER.**		
P2	**Destination: J305 on USB card and connector 10 on motion card.**		
	1	Black	GND
	2	Red	5v
	3	White	12v

3.15 12V power supply

3.15.1 Location



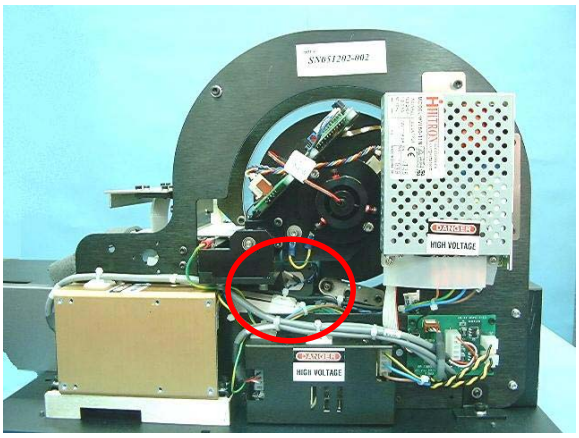
3.15.2 Component & Description

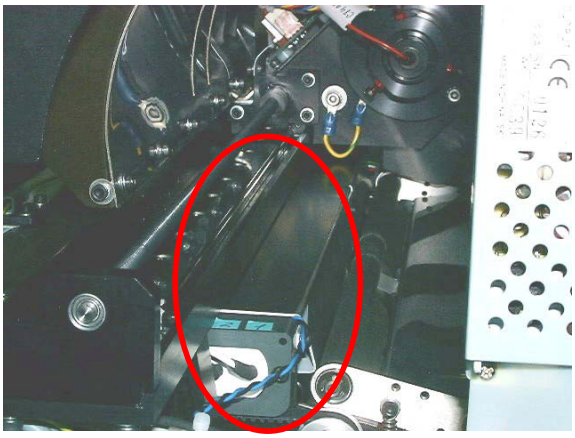


1	2	3	4	5
Brown	**Blue**	**Yellow**	**Black**	**Orange**
Phase	Zero	Ground	DC 12V	DC 12V to J213 on Motion board

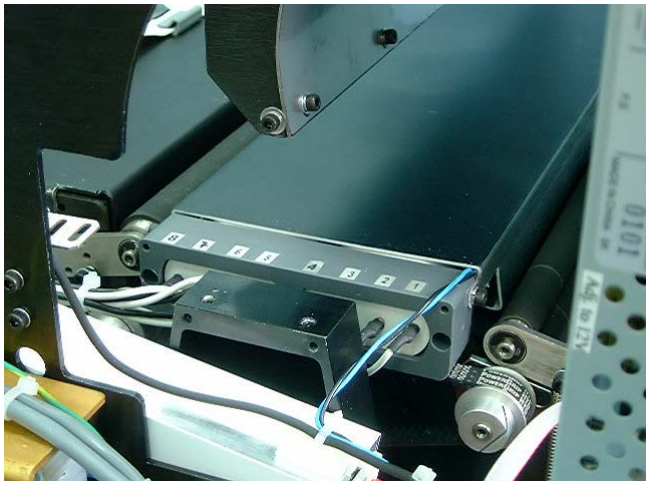
3.16 Erase Lamps

3.16.1 Location

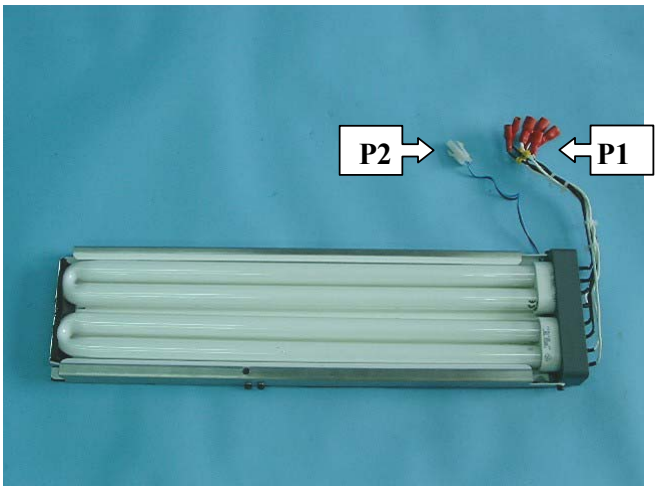




3.16.2 Component



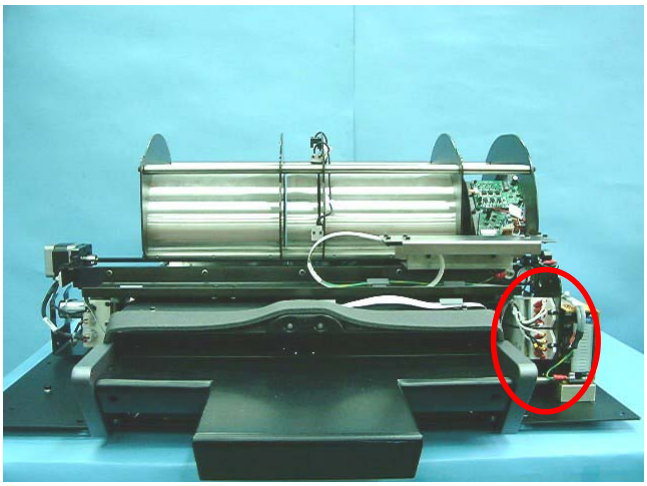
3.16.3 Description



P1	8 connectors to inverters
P2	(trough connector) to J511 on sensors board

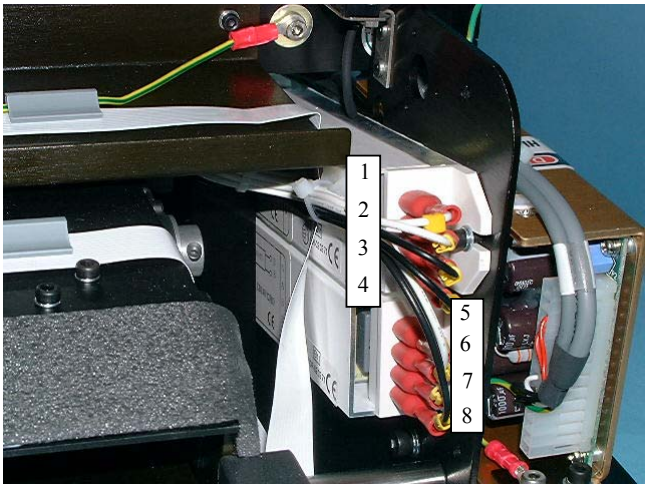
3.17 Inverters

3.17.1 Location



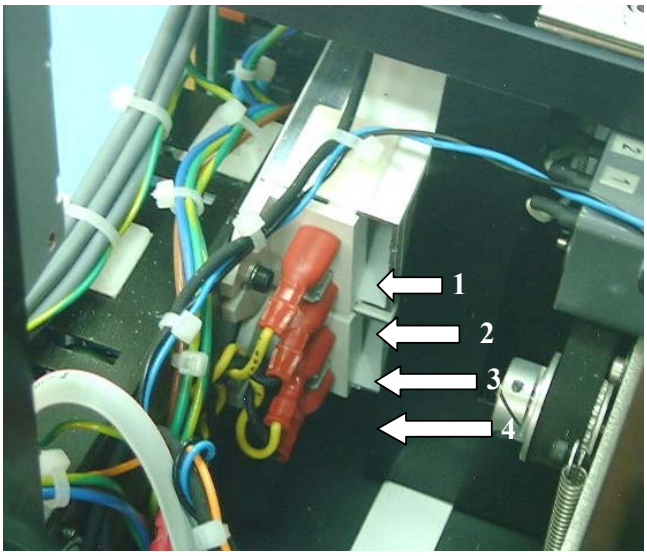
3.17.2 Component & Description

Right side of inverters:



1,2,3,4	Wires connected to Erase Lamp1
5,6,7,8	Wires connected to Erase Lamp 2

Left side of inverters:



Cable from connector J3 on lamps board to inverter 1.		
1	yellow	Lamps on 15v ; lamps off 0v
2	Black	GND
Cable from connector J5 on lamps board to inverter 2.		
3	Yellow	Lamps on 15v ; lamps off 0v
4	Black	GND

4. Appendix A: Required Tools for FSE

Following is a list of tools required for servicing operations:

1. Phillips screw driver (medium)
2. Allen keys (metric): 1.5, 2, 2.5, 3, 4
3. Cutters
4. Long-nose pliers
5. Open key wrenches: 5.5mm, 7mm
6. Solder iron
7. Digital Volt-Meter (with capability to measure frequencies)
8. Flash extractor

5. Appendix B: Service Report

SERVICE REPORT

Reporting distributor:

Company name:		
Technician servicing the PcCr 1417:	Name:	
	Tee. No.:	
	e-mail:	

System information:

System SN:	
Problem reported:	
Problem diagnosis	
Repair activity:	

Result:

Name: _____ signature: _____

6. Appendix C: Cleaning the Rollers

General Information:

1. The rollers-cleaning device enables cleaning the rollers that feed the image plate from the cassette into the reader. The rollers require periodical cleaning in order to remove dust and/or small particles from the plate.
2. The cleaning device includes the following items:
   a) Cleaning tray – Orex catalog number: AC94598-00.
   b) Cleaning plate with adhesive strips that are covered with protective paper / protective envelope – Orex catalog number: AC94599-00.

Using the cleaning plate:

1. Remove cassette and plates from the reader.
2. Open the SCANNER INTERFACE.
3. Click the **setup** button.
4. Open the **Anatomical** screen.
5. Click the **Prepare** button in the **scanner-cleaning** box (located on the left side at the bottom).
6. Disconnect the reader from the electric power source.
7. Attach the cleaning tray to the reader. Push it in until you hear a "click" sound.

Figure 2: Attaching The Cleaning Tray

8. Remove the transparent protective sheet/protective envelope from the cleaning plate.

9. Remove the protective paper strips from the cleaning plate in order to expose the adhesive layer.

Figure 3: The Cleaning Strips

10. Place cleaning plate on tray. Make sure it is placed in the correct direction (as specified on plate).

11. Push the plate into the machine. It should go in almost entirely. A segment of 10cm should remain visible. Do not release your grip from the plate.
12. Repeat step #6 4-6 times.
13. Remove the cleaning plate from the machine. Disconnect the cleaning tray by pulling out the knob underneath the front tray.